



HERBAL MEDICINES *Conference*

FACULTY OF PHARMACEUTICAL SCIENCES
Ahmadu Bello University, Zaria

In collaboration with

PAN-AFRICANA STRATEGIC AND POLICY RESEARCH GROUP,
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ZARIA 2024

HYBRID CONFERENCE (PHYSICAL AND VIRTUAL)

BOOK OF ABSTRACT

Theme:

HERBAL MEDICINES: FROM SEEDS TO PRODUCTS

DATE: Wed. 2nd-Sun. 6th October, 2024.

VENUE: School of Postgraduate Studies (SPGS) A.B.U, Samaru-Zaria.

TIME: 10:00am



PHARMACOGNOSY (PHCOG)

ABSTRACT NO.	AUTHORS	ABSTRACT TITLE
PHCOG-001	Abdulmutalib, A., Umaru, M.L., Tijjani, R.G.	ETHNOMEDICINAL SURVEY OF 'TOKAR SHA' – A SOAP CONCOCTION USED AS MEDICINE IN SOKOTO-NIGERIA
PHCOG-002	¹ Wudil, M.S., ¹ Adamu, R. ^{1,2} Ibrahim, S.A., ³ Umar, S., ⁴ Abdullahi, S., ^{5,6} Aliyu, B.S	PERCEPTION AND PRACTICES OF TRADITIONAL BIRTH ATTENDANTS AND BARBERS IN MATERNAL AND CHILD HEALTH IN KANO STATE, KANO
PHCOG-003	^{*1} Balaraba, H.D., ¹ Musa, K.Y., ¹ Katsayal, U.A., ² Shehu, D.M.	PHARMACOGNOSTIC STUDIES AND DEVELOPMENT OF QUALITY CONTROL PARAMETERS FOR THE WHOLE PLANT OF <i>STRIGA HERMONTHICA</i> (DEL.) BENTH (OROBANCHACEAE)
PHCOG-004	Kachako, Y.M.	ADOPTION OF HERBAL MEDICINES IN MANAGEMENT TROPICAL DISEASES
PHCOG-005	¹ Sabo, I., ¹ Sulaiman, U.M., ¹ Ibrahim, H.M., ² Zakariyya, A.M.	ETHNOMEDICINAL SURVEY OF PLANTS USED IN THE TREATMENT OF TYPHOID AND MALARIA BY TRADITIONAL MEDICAL PRACTITIONERS IN GOMBE LOCAL GOVERNMENT AREA OF GOMBE STATE, NIGERIA
PHCOG-006	Sulaiman, A.N., ² Arzai, A.H., ³ Taura, D.W	ETHNOBOTANICAL SURVEY: A COMPREHENSIVE REVIEW OF MEDICINAL PLANTS USED IN TREATMENT OF GASTRO INTESTINAL DISEASES IN KANO STATE, NIGERIA
PHCOG-007:	^{1*} Balarabe, U.H., ² Solomon, K.J., ³ Aliyu, S., ⁴ Lawal, B.K.	AWARENESS AND ATTITUDE TOWARDS HERBS AND THEIR INTERACTIONS WITH ORTHODOX MEDICINES AMONG PATIENTS ATTENDING TWO SECONDARY HOSPITALS IN KADUNA STATE
PHCOG-008	[*] Ibrahim, H., Danmalam, U.H., Ibrahim, G., Shehu, U.F., Shehu, S., Katsayal, U.A.	ETHNOBOTANICAL SURVEY OF POTENTIAL HERBAL REMEDIES FOR THE TREATMENT OF SARS-COV-2 AND ITS SYMPTOMATIC COMPLICATIONS IN ZARIA, NIGERIA



PHCOG-009	*Abubakar, I.	MEDICINAL BRYOPHYTES ACROSS AFRICA: COUNT BY COUNTRY; CHEMICAL CONSTITUENTS, AND USAGE OF SELECTED SPECIES: A REVIEW.
PHCOG-010	^{1*} Namadi, S., ² Babangida, S.M.	ETHNO MEDICINAL PLANTS USED FOR TREATMENT OF MALARIA IN ZARIA LOCAL GOVERNMENT, KADUNA STATE NIGERIA
PHCOG-011	^{1*} Adeyemo, A.S.	PHARMACOGNOSTIC STUDIES OF THE LEAF OF HURA CREPITANS. L PLANT (EUPHORBIACEAE)
PHCOG-012	*Sani, S.B., Ya'yu, S.A., Haruna, M.	ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS IN BOTANIC GARDENS OF KANO STATE METROPOLIS
PHCOG-013	^{1*} Galadanchi, F.A., ² Shinkafi, T.S., ³ Ibrahim, M.M., ⁴ Ahmed, N.Y.	PHARMACOGNOSTIC AND TOXICOLOGICAL EVALUATION OF METHANOL STEM BARK EXTRACT OF <i>FICUS PLATYPHYLLA</i> IN MALE WISTAR RATS.
PHCOG-014	^{1*} Abdussalam, A.O., ² Isa, H., ³ Mahmud, H.S.	PHARMACOGNOSTIC STUDIES, PHYTOCHEMICAL ANALYSIS AND MINERAL CONTENTS OF <i>JATROPHA TANJORENSIS</i> (L) LEAF
PHCOG-015	^{1*} Bello, H., ² Musa, A.O., ³ Musa, H.M., ⁴ Auwal, H.M., ⁵ Abdulsalami, H.	PHARMACOGNOSTIC AND LARVICIDAL EVALUATION OF <i>ARTEMISIA ANNUA</i> L. SEEDS ON <i>ANOPHELES GAMBIAE</i> GILES
PHCOG-016	^{1*} Usman, B., ² Hassan, A.Z., ² Fadason, S.T., ³ Abdullahi, U.S., ¹ Kaltungo, B.Y., ¹ Babashani, M., ² Andrew, A., ² Kilani, M.A., ² Isiaka, M.L., ² Ahmed, A.L.	ETHNOVETERINARY KNOWLEDGE AND PRACTICES OF OVINE FLOCK OWNERS IN THE MANAGEMENT OF LAMENESS DUE TO INTERDIGITAL POUCH INFLAMMATION IN ZARIA AND ENVIRONS, NIGERIA
PHCOG-017	^{1*} Abdullahi MM, ² Balarabe F, ³ Maliki A U, ⁴ Musa H A, ⁵ Salihu A A, ⁶ Umar A.B, ⁷ Dogo J S, ⁸ Balarabe R	MATERNAL DIETARY PRACTICES AND NUTRIENT COMPOSITION OF DIETS OF LACTATING MOTHERS IN ZARIA LOCAL GOVERNMENT AREA OF KADUNA STATE



PHCOG-018	^{*1,2} Yakubu, U.A., ¹ Abubakar, A.Z., ¹ Shehu, S.	ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED IN THE MANAGEMENT OF DIABETES BY THE TRADITIONAL MEDICAL PRACTITIONERS IN GOMBE STATE, NIGERIA
PHCOG-019	^{*1} Ibrahim, F.B., ² Ibrahim, H., ³ Bayero, H.A	UNLOCKING THE POTENTIAL OF THE BAOBAB TREE FOR HERBAL MEDICINE
PHCOG-020	Saifullahi, U., ¹ Anas, A., ² Halilu, E.M.	PLANTS USED IN TREATMENT OF GASTROINTESTINAL DISORDER IN NORTH SENATORIAL DISTRICT OF KANO, KANO STATE
PHCOG-021	Gabasawa, A.I., ² Jawa, M.I.	UNLOCKING THE POTENTIAL OF MEDICINAL PLANTS: THE ROLE AND RELEVANCE OF SOIL ENZYMES ON PHYTOCHEMICAL COMPOSITION
PHCOG-022	Yahaya, I., ¹ Dawud, I., ² Lawal, M., ³ Efunsayo, O.R., ⁴ Abdul, N.B.	ETHNOBOTANICAL STUDY OF SOME PLANT USED IN TREATMENT OF DIARRHOEA IN LAPAI LOCAL GOVERNMENT AREA OF NIGER STATE
PHCOG-023	Gabasawa, A.I., ² Jawa, M.I.	GOOD AGRICULTURAL PRACTICES IN THE CULTIVATION OF MEDICINAL PLANTS: ROLE OF THE FIELD OF SOIL SCIENCE
PHCOG-024	Adamu, A., Abubakar, A.Z. and Hairu, M	DNA BARCODING OF <i>ANNONASQUAMOSA</i> USING RIBULOSE BISPHOSPHATE CARBOXYLASE GENE MARKER
PHCOG-025	Umar, A.M., ² Namadina, M.M., ² Aliyu, B.S.	ETHNO-BOTANICAL SURVEY OF PLANT SPECIES USED IN THE MANAGEMENT OF MENOPAUSE IN KANO STATE, NIGERIA
PHCOG-026	Bichi, A.M., ¹ Haruna, H., ² Mohammed, M.S.	ETHNOBOTANICAL SURVEY OF MEDICINAL POTENTIALS AND PHYTOCHEMICAL COMPOSITION OF <i>ACALYPHA WIKESIANA</i> Mull. Arg. IN ZARIA, KADUNA STATE, NIGERIA



PHCOG-027	Anas, A., ² Ambi, A.A., ² Mohammed, Z., ³ Saleh, M.I.A., ¹ Saifullahi, U., ⁴ Jajere, U.M.	PHARMACOGNOSTIC STUDIES ON LEAF OF <i>BORRERIA STACHYDEA</i> [(DC) HUTCH AND DALZIEL] (RUBIACEAE)
PHCOG-028	Adelanwa, E.B., ² Adelanwa, M.A., ³ Muhammed, Z.O.	ETHNO-BOTANICAL SURVEY OF MEDICINAL PLANTS USED IN ZARIA, KADUNA STATE
PHCOG-029	^{1*} Ezea, S.C., ² Ayogu, O.U., ³ Chukwube, V.O., ⁴ Akpeko, O., ⁵ Onyeka, C.S.	PHARMACOGNOSTIC STUDIES AND ANTIDIABETIC ACTIVITIES OF THE METHANOL EXTRACT OF <i>LEPTACTINA INVOLUCRATA</i> HOOK.F (RUBIACEAE)"
PHCOG-030	^{*1,2} Yakubu, U.A., ¹ Abubakar, A.Z., ¹ Shehu, S.	ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED IN THE MANAGEMENT OF HYPERTENSION BY THE TRADITIONAL MEDICAL PRACTITIONERS GOMBE STATE – NIGERIA
PHCOG-031	Yunusa R, Abdurrahman	FOR NON-COMMUNICABLE DISEASES, ALLOPATHIC MEDICINE HAS FAILED; HOLISTIC MEDICINE (SUCH AS HERBAL MEDICINE) AND NUTRITION ARE THE FUTURE

PHARMACOLOGY (PHCOL)

ABSTRACT NO.	AUTHORS	ABSTRACT TITLE
PHCOL-001	^{*1} Ahmad, M.M., ² Maje, M.I., ² Ya'u, J., ¹ Abba, M.U.	TOXICITY STUDY ON ALKALOID-RICH FRACTION OF <i>DETARIUM MICROCARPUM</i> (FABACEAE) STEM BARK IN WISTAR RATS
PHCOL-002	^{*1} Alemika-Bonire, E., ¹ Maje I.M., ² Auwal, A.S., ¹ Bello- Omenesa, R.	THE EFFECTS OF CO- ADMINISTRATION OF DOLUTEGRAVIR ANDAQUEOUS LEAF EXTRACT OF <i>VERNONIA AMAGDALINA</i> (FAMILY)ON THE HEMATOLOGICAL PARAMETERS OF WISTAR RATS
PHCOL-003	^{*1} Saleh, A., ¹ Hussaini, H.S., ¹ Fatih, M.Y., ² Suleiman, M.M., ³ Muhammed, N.	TOXICOPATHOLOGY ASSOCIATED WITH ACUTE EXPOSURE OF MALE WISTAR RATS TO ETHANOL LEAF EXTRACT OF <i>DATURA STRAMONIUM</i> (LINN.)



PHCOL-004	¹ Ahmad, M.M., ² Maje, M.I., ² Ya'u, J., ¹ Abba, M.U.	EFFECT OF 28-DAY REPEATED ORAL ADMINISTRATION OF FLAVONOID- RICH FRACTION OF <i>DETARIUM</i> <i>MICROCARPUM</i> (FABACEAE) STEM BARK ON LIVER AND KIDNEY PARAMETERS AND OTHER BIOMARKERS IN WISTAR RATS
PHCOL-005	*Ayagwa, A.T., Vantsawa, P.A., Abdulsalami, M.S.	ANTINOCICEPTIVE AND ANTIINFLAMMATORY POTENTIALS OF <i>JATROPHA TANJORENSIS</i> METHANOLIC LEAF EXTRACT
PHCOL-006	*Osibemhe, M., Ebri, U.U.	EFFECT OF AQUEOUS CRUDE EXTRACT OF <i>CYPERUS ESCULENTUS</i> (CYPERACEAE) ON IMPORTANT BIOCHEMICAL INDICES INVOLVED IN PENILE ERECTION IN MALE WISTAR RATS
PHCOL-007	Lawan, Z., Babandi, A., Idi, A., *Ibrahim, A.	<i>ADENIUM OBESUM</i> ETHANOL STEM- BARK EXTRACT AND ETHYL ACETATE FRACTIONS AMELIORATED OXIDATIVE STRESS ASSOCIATED WITH BEHAVIORAL CHANGES IN VINCRIStINE-INDUCED PERIPHERAL NEUROPATHIC RATS
PHCOL-008	*Shehu, S., Shehu, U.F., Oyedeggi, D.E.	ANTI-ULCER PROPERTIES OF THE OIL EXTRACTED FROM THE SEEDS OF <i>FICUS RELIGIOSA</i> L. (MORACEAE)
PHCOL-009	¹ *Sani, I.H., ² Umar, M.A., ³ Abubakar, A.R., ³ Yaro, A.H., ³ Malami, S.	EVALUATION OF ANTIDEPRESSANT ACTIVITY OF METHANOL LEAF EXTRACT OF <i>LEPTADENIA HASTATA</i> ON SOME PHARMACOLOGICAL TARGETS AND BIOMARKERS FOR DEPRESSION IN MICE
PHCOL-010	Akpebe, A.N.	SORGHUM BICOLOR LEAF SHEATHS: A PHYTOCHEMICAL APPROACH TO MITIGATE CARDIOVASCULAR DISEASES
PHCOL-011	¹ Abbas, M.Y., ¹ Ajiboye, S.J., ² Yakubu, M.I., ¹ Bello, R.O., ¹ Hassan, F.I.	ANTI-DEPRESSANT ACTIVITIES OF METHANOL EXTRACT OF <i>MORINGA</i> <i>OLEIFERA</i> (LAM) SEED IN MICE



PHCOL-012	^{1*} Isezuo, O.H., ¹ Danmalam, H.U., ¹ Ibrahim, H., ² Shehu, A., ¹ Jimoh, O.V.	PRELIMINARY PHYTOCHEMICAL SCREENING, TOXICITY AND ANTI-INFLAMMATORY STUDIES OF METHANOL LEAF EXTRACT OF <i>ANEILEMA BIFLORUM</i>
PHCOL-013	^{1*} Amagon, K., ² Amagon, L., ³ Maimako, B., ⁴ Magani, E.W.	POTENTIAL OF BRASSICA OLERACEA VAR. CAPITATA F. RUBRA TO PROTECT AGAINST DOLUTEGRAVIR-INDUCED KIDNEY INJURY IN WISTAR ALBINO RATS: A PRELIMINARY STUDY
PHCOL-014	^{1*} Abdullahi, N., ² Adamu, M.A., ³ Shehu, A., ⁴ Musa, K.A.	BIOASSAY- GUIDED AND ANTIDIARRHOEAL ACTIVITY OF AQUEOUS RESIDUAL FRACTION LEAF EXTRACT OF <i>IPOMEA BATATAS</i> L
PHCOL-015	^{1*} Amagon, L., ² Iheanaeto, S.C., ³ Amagon, K.I., ⁴ Omale, S., ⁵ Wanche, E.M., ⁶ Falang, K.D., ⁷ Bukar, B.B.	EFFECTS OF DOLUTEGRAVIR ON GEOTACTIC BEHAVIOR IN <i>DROSOPHILA MELANOGASTER</i> : THE PROTECTIVE EFFECTS OF BRASSICA OLERACEA
PHCOL-016	^{1*} Adah, C.A., ² Tarnande, C.I., ³ Agbo, D.A., ⁴ Agbo, E.O., ⁵ Kukwa, R.E.	TOXICITY STUDIES ON <i>ANNONA SENEGALENSIS</i> (ROOT BARK), <i>PILIOSTIGMA THORNINGII</i> (STEM BARK) AND <i>PARINARI CURATELIFOLIA</i> LEAF USING ALBINO WISTAR RATS MODEL
PHCOL-017	^{1*} Bello MG	PH-DEPENDENT LOADING OF LUTEOLIN INTO CYCLODEXTRIN-BASED MOFS; A STRATEGIC APPROACH TO IMPROVE STABILITY AND ANTI-INFLAMMATORY ACTIVITY
PHCOL-018	^{1*} Abdussalam, U., ² Maje, I.M., ³ Anafi, S.B., ⁴ Jatau, I.D.	ANTI-INFLAMMATORY AND ANTIPYRETIC ACTIVITIES OF METHANOL LEAF EXTRACT OF <i>CRYPTOLEPIS OBLONGIFOLIA</i> (APOCYNACEAE) IN WISTAR RATS
PHCOL-019	^{1*} Ibrahim, B.A., ¹ Shehu, S., ¹ Abdullahi, A.M., ¹ Hadi, Y.M., ² Muhammad, M.M.	PHYTOCHEMICAL ACUTE TOXICITY AND ANTI-INFLAMMATORY STUDIES OF ETHANOL EXTRACT OF <i>PAVETTA OWARIENSIS</i> P. BEAUV IN RATS



PHCOL-020	^{*1} Abdullahi, A.M., ² Ambi, A.A., ² Katsayal, U.A., ¹ Oduma, S.E., ¹ Hadi, Y.M., ¹ Ahmed, M.A.	NEPHROTOXIC EFFECT ON THE METHANOL LEAF EXTRACT OF <i>SENNA SIAMEA</i> LAM. (FABACEAE) ON PHENYL HYDRAZINE INDUCED ANAEMIA IN MALE WISTAR RAT
PHCOL-021	¹ Isah, A.O., ² Idu, M., ³ Amaechina, F.C.	EVALUATION OF ANTIHYPERLIPIDAEMIC PROPERTY OF METHANOL EXTRACT OF THE LEAF OF <i>CROSSOPTERYX FEBRIFUGA</i> (AFZEL. EX G. DON) BENTH
PHCOL-022	^{1*} Suleiman, M.J., ² Sadiq, M. E., ³ Yankuzo, M.H., Musa, ⁴ M.O., ⁵ Umar, U.Z., ⁶ Usman, B., ⁷ Ismail, S., ⁸ Imam, M.U.	MOLECULAR EVALUATION OF B-ISLET CELL REJUVENATION IN DIABETIC RATS TREATED WITH <i>MIRABILIS JALAPA</i> ROOT EXTRACTS
PHCOL-023	^{1*} Dogara, J.K., ² Yusuf, T.	AMELIORATIVE EFFECTS OF VIRGIN COCONUT OIL ON BLOOD GLUCOSE LEVELS AND OXIDATIVE STRESS BIOMAKERS ON EXPERIMENTAL DIABETIC MALE WISTAR RATS

PHARMACEUTICS (PHCEU)

PHCEU-001	^{1*} Poyi, O.C., ² Yashim, C.D.	IMPACT OF A POLYHERBAL FORMULATION ON THE DISSOLUTION PROFILE OF CIPROFLOXACIN TABLETS
PHCEU-002	^{*1} Kadiri, O.J., ² Anukam, N.C., ³ Oyiza, M.J., ⁴ Chris-Otubor, G.O.	FORMULATION AND EVALUATION OF CREAMS CONTAINING METHANOLIC LEAF EXTRACT OF <i>MOMORDICA BALSAMINA</i> LINN (CUCURBITACEAE) FOR ANTIMICROBIAL ACTIVITY
PHCEU-003	^{*1} Kadiri, O.J., ² Onoja, V., ³ Yusuf, O.V.	FORMULATION AND EVALUATION OF CREAMS CONTAINING ETHANOLIC EXTRACT OF <i>OCIMUM GRATISSIMUM</i> LINN (LAMIACEAE) AND <i>CHROMOLAENA ODORATA</i> LINN (ASTERACEAE) FOR ANTIMICROBIAL ACTIVITY
PHCEU-004	¹ Rabiu, Z., ¹ Imam, A.F., ¹ Safiyanu, M., ¹ Sani, F.A., ^{*1} Oseni, F.A., ² Maigari, F.U.	FORMULATION AND EVALUATION OF PHYSIOCHEMICAL PROPERTIES OF SOAP CONTAINING TURMERIC POWDER (<i>CURCUMA LONGA</i>)
PHCEU-005	^{*1} Aliyu, Y., ² Idris, A.M., ² Abba, A., ² Umar, S., ³ Bala, A.A., ⁴ Mohammed, A., ¹ Mahmud, H.S., ¹ Musa, H., ¹ Abdulsamad, A., ² Mudi, S.Y.	EFFECT OF PROCESSING CONDITIONS ON PHYTOCONSTITUENTS OF GINGER AND SPEARMINT AQUEOUS EXTRACT, LYOPHILIZED POWDER AND GRANULES

STANDARDIZATION QUALITY CONTROL (STAQC)

ABSTRACT NO.	AUTHORS	ABSTRACT TITLE
STAQC-001	* ¹ Tijani, K.B., ² Magaji, M.G., ³ Ya'u, J., ⁴ Danmalam, H.U., ⁵ Funso, F.B.	INVESTIGATION ON PHYTOCHEMICAL STANDARDIZATION, ORAL ACUTE TOXICITY AND NUTRACEUTICAL PROFILES OF AQUEOUS EXTRACT OF AG-S90 POLYHERBAL FORMULATION IN OKENE, L.G.A., KOGI STATE
STAQC-002	*Yahaya, Z.I., Aliyu, A.B., Ajibola, V.O.	ELEMENTAL COMPOSITION AND DISTRIBUTION IN SOIL AND SOME MEDICINAL PLANTS GROWING IN NORTHERN NIGERIA
STAQC-003	* ¹ Babale, A.A., ² Musa, H., ² Olowosulu, A.K., ² Ibrahim, B.A., ¹ Salim I., ¹ Gwarzo, M.S., ² Babawuro, A.A., ² Aliyu, Y., ¹ Mohammed, S.	AVAILABILITY AND QUALITY ASSESSMENT OF DIFFERENT BRANDS OF ARTEMISININ-BASED COMBINATION THERAPY (ACT) TABLETS CIRCULATING IN KADUNA STATE, NIGERIA
STAQC-004	* ¹ Imam, T.S., ¹ Suleiman, K., ² Salisu, N., ¹ Ibrahim, S.B.	ASSESSMENT OF SOME TRACE ELEMENTS IN ETHNOMEDICINES MARKETED AT KURMI MARKET, KANO METROPOLIS, NORTHERN NIGERIA
STAQC-005	* ¹ Bashir, A., ² Usman, M.A., ³ Danmusa, U.M., ⁴ Awwalu, S.	QUALITY ASSESSMENT OF CARICA PAPAYA LINN LEAF COLLECTED FROM VARIOUS LOCATIONS OF KADUNA STATE IN DIFFERENT SEASONS

PHYTOCHEMICAL ANALYSIS (PHYTO)

ABSTRACT NO.	AUTHORS	ABSTRACT TITLE
PHYTO-001	*Okoro, N., Abdullahi, S.M., Hassan, H.S.	LUPEOL AND STIGMASTEROL ACETATE FROM THE METHANOL EXTRACT OF <i>ACHYRANTHES ASPERA</i> LINN. (AMARANTHACEAE)
PHYTO-002	* ¹ Ismail, S.I., ¹ Abdullahi, S.M., ¹ Sule, M.I., ¹ Dauda, G., ¹ Rabiu, H., ² Garba, S., ³ Isah, M., ⁴ Abdulazeez, N.	PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL EVALUATION OF METHANOL STEM-BARK EXTRACT OF <i>LONCHOCARPUS SERICEUS</i> POIR. (PAPILIONACEAE) AGAINST MDR ENTEROBACTERIACEAE CLINICAL ISOLATES
PHYTO-003	*Baba, N.H., Longbap, D.B., Attahdaniel, A.S.	STUDY ON THE PHYTOCHEMICAL CONSTITUENTS AND ANTIMICROBIAL ACTIVITIES OF <i>POLYALTHIA LONGIFOLIA</i> (MASQUERADE TREE) LEAF EXTRACTS GROWN IN TARABA STATE, NORTH EASTERN NIGERIA



PHYTO-004	*Ibrahim, H., Danmalam, H.U., Katsayal, U.A., Ibrahim, G., Shehu, S., Shehu, U.F., Abdurahman, E.M.	PHYTOCHEMICAL AND ANTIVIRAL STUDIES OF <i>ANOGEISSUS LEIOCARPUS</i> (DC) GUILL. & PERR. (COMBRETACEAE)
PHYTO-005	*Lawan, U.	<i>VERNONIA AMYGDALINA</i> : A PROMISING HERB IN THE TREATMENT OF MALARIA
PHYTO-006	*Bello, H., Daniel, F.	COMPARATIVE PHYTOCHEMICAL AND PHYSICOCHEMICAL EVALUATION OF TELFAIRIA OCCIDENTALIS HOOK. F (FLUTED PUMPKIN) LEAVES CULTIVATED WITH ORGANIC AND INORGANIC MANURE
PHYTO-007	* ¹ Andrew, C., ² Mahmud, H.S., ³ Habila, J.D.	MICROWAVE-ASSISTED EXTRACTION OF <i>ANOGEISSUS LEIOCARPUS</i> EXTRACT AND ITS ANTI-INFLAMMATORY ACTIVITY
PHYTO-008	^{1*} Isa, H., ² Katsayal, U.A., ³ Abdurahman, E.M., ⁴ Maje, I.M., ⁵ Nasir, H.A., ⁶ Sadam, A., ⁷ Dauda, G.	ANTIOXIDANT AND <i>IN VITRO</i> β - HEMATIN INHIBITION POTENTIALS OF THE n- HEXANE FRACTION AND ITS ISOLATED COMPOUND FROM THE AERIAL PARTS OF <i>VERNONIA CINEREA</i> LESS. (ASTERACEAE)
PHYTO-009	^{1*} Iyen IS, ² Igoli, J.O., ³ Malu, D.G., ⁴ Tor-Anyiin, T.A., ⁵ Anyam, J.V., ⁶ Santali, E.	ISOLATION, CHARACTERIZATION AND MECHANISTIC INSIGHT OF A FLAVONOID FROM NIGERIAN RED PROPOLIS AS POTENTIAL ANTIMICROBIAL AGENT
PHYTO-010	^{1*} Barde, A., ² Oloyede, R.B., ³ Haruna, A., ⁴ Muhammad, A., ⁵ Bashir, A.IJ., ⁶ Jimoh, A.A.	PHYTOCHEMICAL ANALYSIS AND ANTIBACTERIAL ACTIVITY OF ACETONE EXTRACT OF <i>TERMINALIA</i> <i>CATAPPA</i> LINN. LEAVES
PHYTO-011	^{1*} Abubakar, A., ² Aliyu, B.S., ³ Abdullahi, N.M., ⁴ Namadina, M M., ⁵ Safiya, B.	PHYTOCHEMICAL STUDY AND ANTITRYPANOSOMAL EFFICACY OF <i>BUCHOLZIA CORIACEA</i> ENGL. (WONDER KOLA)
PHYTO-012	^{1*} Lawal, M.D., ² Abdullahi, M.S., ³ Yargamji, N.G., ⁴ Mohammed, F., ⁵ Haruna, A., ⁶ Isah, M	ANTIMICROBIAL STUDIES ON THE LEAVES AND ROOT BARK EXTRACTS OF <i>ADANSONIA DIGITATA</i> L. (MALVACEAE)
PHYTO-013	^{1*} Ja' Afar, K.S., ² Sufiyanu, S., ³ Ibrahim, N.M., ⁴ Abdul- Azeez, K., ⁵ Aminu, A.M., ⁶ Ahmed, S.	ANTIBACTERIAL ACTIVITY OF SELECTED SPICES AGAINST BACTERIAL STRAINS (<i>ESCHERICHIA COLI</i> AND <i>STAPHYLOCOCCUS AUREUS</i>)



PHYTO-014	^{1*} Adesokan, M.O., ² Laoye, U.A., ³ Ibikunle, J.B., ⁴ Komolafe, O.F., ⁵ Onyemuwa, C.	ANTIMICROBIAL ACTIVITY OF METHANOLIC AND AQUEOUS EXTRACT OF <i>POLYALTHIA LONGIFOLIA</i> STEMS ON <i>STAPHYLOCOCCUS AUREUS</i> (ATCC 25924) AND <i>STREPTOCOCCUS PYOGENES</i>
PHYTO-015	^{1*} Ibrahim, H.M., ² Abubakar, A.M., ³ Zachariah, E., ⁴ Musa, T.L., ⁵ Yakubu, U.A.	PHYTOCHEMICAL AND ANTIOXIDANT STUDIES OF THE ROOT- BARK EXTRACTS OF <i>VITELLARIA PARADOXA</i>
PHYTO-016	^{1*} Mukhtar, U.D., ² Musa, A.M., ³ Abdullahi, M.I., ⁴ Bashir, A., ⁵ Garba, M.A., ⁶ Abdullahi, I.	PHYTOCHEMICAL SCREENING AND ANTI-VENOM STUDIES ON THE METHANOL EXTRACT OF <i>LEPIDAGATHIS COLLINA</i> (ENDL.) MILNE-REDH AGAINST <i>NAJA NIGRICOLLIS</i> VENOM
PHYTO-017	^{1*} Ibrahim, N.M., ² Abdullahi, R.I., ³ Ja'afar, K.S., ⁴ Aminu, A.M., ⁵ Kontagora, G.F.	EFFECT OF <i>VERNONIA AMYGDALINA</i> (BITER LEAF) EXTRACT ON FUNGI INFECTED STORED TOMATO
PHYTO-018	^{*1} Lawal, M., ² Muhammad, N., ² Abdullahi, B.	CHEMICAL COMPOSITION AND MEDICINAL POTENTIALS OF <i>HYPTIS SUAVEOLENS</i> (L.) POITESSENTIAL OIL EXTRACTED BY HYDRO-DISTILLATION
PHYTO-019	[*] Usman, H.S., Usman, S.A., Sallau, A.B.	POTENTIAL OF <i>SOLANUM MELONGENA</i> FRUITS AND LEAF FRACTIONS IN INHIBITION OF ADVANCED GLYCATION END PRODUCTS (AGES) AND DPPH RADICAL
PHYTO-020	¹ Famojuro, T.I., ² Famojuro, O.B., ¹ Datok, T., ¹ Abigail, R.B., ¹ Odoh, R.E	PHYTOCHEMICAL EVALUATION, PROXIMATE ANALYSIS, AND ANTIOXIDANT ACTIVITY OF THE PEELS OF FIVE FRUITS COMMONLY CONSUMED IN NIGERIA
PHYTO-021	^{*1} Mshelia, M.B., ² Adeshina, G.O., ² Onaolapo, J.A., ³ Musa, A.M.	ANTIBACTERIAL EFFICACY OF <i>MORINDALUCIDA</i> AND <i>VERNONIA AMYGDALINA</i> LEAF EXTRACTS AGAINST ANTIBIOTIC RESISTANT <i>SALMONELLA</i> SPECIES
PHYTO-022	¹ Asimi, S., ² Drammeh, A., ¹ Aliyu, A.B.	ANTIBACTERIAL, ANTIOXIDANTS AND LCMS PROFILING OF <i>CENTAUREA SENEGALENSIS</i> (DC) METHANOL EXTRACT
PHYTO-023	¹ Akanni, I.O., ² Danmalam, H.U. ³ Bolaji, R.O., ⁴ Onaolapo, J.A.	PHYTOCHEMICAL SCREENING OF THE AQUEOUS FRACTION FROM STEM-BARK METHANOL EXTRACT OF <i>PARKIA BIGLOBOSA</i> (JACQ.) BENTH USING GC-MS ANALYSIS



PHYTO-024	^{*1} Drammeh, A., ² Wudimwa, G.J., ² Baba, E., ² Aliyu, A.B	LCMS PROFILING AND ANTIOXIDANTS ACTIVITY OF <i>VERNONIA PAUCIFLORA</i> (WILLD.) LESS. METHANOL EXTRACT
PHYTO-025	Shehu, U.F., Toma, G.V., Shehu, S., Abubakar, A.Z., Adamu, A.	PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL STUDIES ON THE AQUEOUS ETHANOL EXTRACT OF THE LEAVES OF <i>WALTERIA INDICA</i> . LINN (STERCULIACEAE) AND AERIAL PARTS OF <i>EUPHORBIA HIRTA</i> LINN (EUPHORBIACEAE)
PHYTO-026	^{*1,2} Idris, A.M., ² Ibrahim, H., ² Ambi, A., ³ Tanko. Y., ⁴ Khalili, M.A.R.	ANTIOXIDANT AND ANTISICKLING STUDIES OF THE BUTANOL EXTRACT OF THE LEAF OF <i>DETARIUM MICROCARPUM</i>
PHYTO-027	^{*1} Zakari, A., ¹ Adefila, A.J., ² Drammeh, A., ¹ Aliyu, A.B.	GREEN SYNTHESIS OF SILVER NANOPARTICLES USING <i>VERNONIA COLORATA</i> (WILLD.) DRAKE EXTRACT AND ITS ANTIBACTERIAL ACTIVITY
PHYTO-028	Rabiu, H.M., Musa, A.M., Ismail, S.I., Abdullahi, S.M., Sani, Y.M., Garba, S.	ISOLATION, CHARACTERIZATION, AND <i>EX-VIVO</i> ANTI-VENIN PROPERTIES OF 2,4-DIHYDROXY-4'-PRENYLOXYCHALCONE FROM THE METHANOL EXTRACT OF THE AERIAL PARTS OF <i>INDIGOFERA PULCHRA</i> WILLD (FABACEAE)
PHYTO-029	Halilu, E.M., Alhajj, L	PHYTOCHEMICAL STUDIES AND EVALUATION OF BIOLOGICAL ACTIVITIES OF STEMS OF <i>MENTHA SPICATA</i> L.
PHYTO-030	¹ Oseni, F.A., ¹ Safiyanu, M., ² Abubakar, F.A., ¹ Sani, A.H., ¹ Baba, A.M	ANALYSIS OF THE ANTIOXIDANT AND ANTI-INFLAMMATORY POTENTIALS OF <i>ANOGEISUSLEIOCAPUS</i> (DC.)GUILL.&PERR LEAF EXTRACTS
PHYTO-031	¹ Bichi, A.M., ¹ Haruna, H., ² Mohammed, M.S.	AN ASSESSMENT OF THE PHYTOCHEMICAL CONSTITUENTS OF <i>PHYLLANTHUS AMARUS</i> IN SOLVING VARIOUS HUMAN AILMENTS IN NIGERIA
PHYTO-032	^{*1} Umar, M.R., ² Idris, A.S., ² Adeleke, A.J., ³ Bashir, R.A., ⁴ Audi, A.U.	INHIBITORY EFFECTS OF CLOVE EXTRACT ON <i>ESCHERICHIA COLI</i> AND <i>STREPTOCOCCUS PYOGENES</i> ISOLATED FROM <i>KUNUN ZAKI</i>



PHYTO-033	¹ Sada, H., ¹ Habila, J.D., ¹ Aliyu, A.B., ¹ Sallau, M.S., ² Musa, A.M.	ANTIVENIN ACTIVITY AND ISOLATION OF KEAMPFEROL FROM THE LEAVES OF <i>INDIGOFERA ASTRAGALINA DC</i> (FABACEAE)
PHYTO-034	¹ Ibrahim, B., ^{*2} Ibrahim, H.	PHYSICO-CHEMICAL AND PHYTOCHEMICAL ANALYSIS OF THE SEEDS AND OIL OF <i>ADANSONIA DIGITATA L.</i> (COMBRETACEAE) FOR PRODUCTION
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PHYTO-036	^{*1} Yakub, A.U., ² Mathur, A., ³ Yahaya, S.	<i>IN VITRO</i> ANTI-PLASMODIAL ACTIVITY OF AQUEOUS AND ETHANOL STEM AND LEAF EXTRACTS OF <i>SENNA OCCIDENTALIS (L.)</i> (COFFEE SENNA)
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PHYTO-038	^{1*} Jumare, F.M., ² Anchau, Z.G., ³ Ibrahim, D	NUTRIENT COMPOSITION AND FTIR SPECTROSCOPIC UNVEILING OF BIOACTIVE COMPOUNDS IN <i>JATROPHA TANJORENSIS</i> LEAVES
PHYTO-039	^{1*} Abdullahi, R.I., ² Rofiyat, A., ³ Ibrahim, N.M., ⁴ Jibril, A.S.	ANTITRYPANOSOMAL ACTIVITY OF AQUEOUS LEAF EXTRACT OF <i>OCIMUM SANCTUM L.</i>
PHYTO-040	^{1*} Yusuf, I., ² Adeshina, G.O., ³ Aroh, K.E.	THIN LAYER CHROMATOGRAPHY (TLC) PHYTOCHEMICAL SCREENING OF MOST ACTIVE FRACTION OF <i>ALCHORNEA CORDIFOLIA</i> AQUEOUS LEAF EXTRACT
PHYTO-041	^{*1} Sale, A.I., ² Yahaya, S.M.	ASSESSING THE EFFECTS OF LED IRRADIATION ON THE VOLATILE COMPOUNDS OF <i>OCIMUM BASILICUM</i> (SWEET BASIL)



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PP-002	^{1*} Nuhu, A.M., ² Istifanus, S.U., ³ Idris, A.	PHYTOCHEMICAL SCREENING, GC-MS CHARACTERIZATION AND ANTIOXIDANT ACTIVITY OF N-HEXANE FRACTION OF <i>Microtrichia perotitii</i> .DC
PP-003	^{1*} Ayagwa, A.T., ² Vantsawa, P.A., ³ Abdulsalami, M.S., ⁴ Dan, V.M.Y., ⁵ Egbe, N.E., ⁶ Comfort, S.Y., ⁷ Enoh, E.E.	EVALUATION OF ALLERGENICITY, TOXICITY AND PHYTOCHEMICAL ANALYSIS OF METHANOLIC LEAF EXTRACT OF <i>JATROPHA TANJORENSIS</i>
PP-004	*Ibrahim, G., Ibrahim, H., Danmalam, H.U., Shehu, U.F., Shehu, S.	PHYTOCHEMICAL EVALUATION AND HERBAL TEA FORMULATIONS OF THE STEM BARK OF <i>ANOGEISSUS LEIOCARPUS</i> (DC) GUILL. & PERR. (COMBRETACEAE)
PP-005	*Ibrahim, Z.Y., Malami, I., Lawal, M., Ahmed, A.H., Muhammad, M.	EVALUATION OF THE ANTIHYPERGLYCEMIC EFFECT OF <i>OCHNA MEMBRANACEA</i> (OLIV) OCHNACEAE USING DROSOPHILA MELANOGASTER
PP-006	^{1*} Hamza, M.M., ² Umar, Y.A., ³ Abdulsalami, M.S., ⁴ Onwumere, G.B., ⁵ Abdullahi, I., ⁶ Shehu, M.M.	STUDIES ON THE QUALITATIVE AND QUANTITATIVE PHYTOCHEMICAL CONSTITUENTS OF ETHANOLIC EXTRACTS OF <i>ADANSONIA DIGITATA</i> , <i>MORINDA CITRIFOLIA</i> AND <i>TAMARINDUS INDICA</i>
PP-007	*Ogah, C.F., Anyanwu, G.O., Gyebi, G.A.	THE POTENTIAL OF COMPOUNDS FROM PILOSTIGMA THONNINGII LEAF EXTRACTS IN INHIBITING PROGESTERONE RECEPTOR: A MOLECULAR DOCKING APPROACH TO UTERINE FIBROID THERAPY.
PP-008	*Bello, R., Abbas, M., Hassan, F.I., Adamu, F.K.	THE AQUEOUS WHOLE FRUIT EXTRACT OF <i>AZANZA GARCKEANA</i> (GORON TULA) ALLEVIATES CASTOR OIL INDUCED DIARRHOEA IN MICE.
PP-009	^{*1} Samuel, A.A., ¹ Temitayo, O.I., ² Godwin, A.O.A.	ANTIBACTERIAL ACTIVITY OF THE LEAF EXTRACTS OF <i>STACHYTARPHETA ANGUSTIFOLIA</i> (MILL.) VAHL (VERBENACEAE) AGAINST METHICILLIN-RESISTANT <i>STAPHYLOCOCCUS AUREUS</i> (MRSA)



PP-010	^{1*} Matankari, R.M, ² Igba, P., ³ Olayinka, B.O., ⁴ Ehinmidu, J.O.	ANTIBIOTICS SUSCEPTIBILITY PATTERN OF ENTEROBACTERIACEAE AND <i>PASTEURELLA</i> SPP ISOLATED FROM QUAIL EGG SHELLS IN SOME FARMS IN KADUNA STATE, NIGERIA
PP-011	^{1*} AbdulAziz, Z.A., ² Aminu, A.K., ² Danmalam, U.H.	PHYTOCHEMICAL AND ANTIMICROBIAL STUDIES OF n-HEXANE EXTRACT OF THE LEAF OF <i>BOSWELLIA DALZIELII</i> HUTCH (BRUSERACEAE)



PHARMACOGNOSY (PHCOG)



PHCOG-001:**ETHNOMEDICINAL SURVEY OF 'TOKAR SHA' – A SOAP CONCOCTION USED AS MEDICINE IN SOKOTO-NIGERIA**

Abdulmutalib, A., Umaru, M.L., Tijjani, R.G.

Department of Pharmacology and Toxicology, Usmanu Danfodiyo University, Sokoto.

Corresponding author: rtgiaze1143@gmail.com Phone: +2348135237739**ABSTRACT**

'Tokar sha' or 'sabulun toka', is a soap concoction that has found important medicinal application in the northwestern states (Sokoto, Kebbi and Zamfara) of Nigeria. Despite the wide use of 'Tokar sha', little data is available on its folkloric claim. The current study aims to establish a database on the medicinal application of 'Tokar sha' through field survey. One hundred (100) participants comprising mainly of Traditional Medicine Practitioners (TMP's), experienced elders and actual drug users from 7 selected local government areas of Sokoto State were directly interviewed using a semi-structured questionnaire complimented by a voice recording and open-ended conversation. The preparations of 'Tokar sha', commonly administered via oral route (90.91%), were dissolved juice (93.94%) and decoction (6.06%). Before administration, it was commonly mixed with tamarind (48.48%), 'fura' (27.27%), lime (16.67%) or fresh cow milk (7.58%) as vehicle. 'Tokar sha' was reported to be used for the management of piles (40.91%), constipation (19.69%), dysentery (15.27%), diarrhea (12.12%), malaria (3.03%), and typhoid (1.52%). Once daily dosing (62.12%) for a period of few days (56.06%) was the most recommended dose regimen. The study showed that 'tokar sha' is strongly believed to be effective in the treatment of gastrointestinal conditions such as piles, constipation and dysentery.

Keywords: Tokar sha, ethnomedicinal survey, sabulun toka', piles

PHCOG-002:**PERCEPTION AND PRACTICES OF TRADITIONAL BIRTH ATTENDANTS AND BARBERS IN MATERNAL AND CHILD HEALTH IN KANO STATE, KANO**¹Wudil, M.S., ¹Adamu, R. ^{1,2}Ibrahim, S.A., ³Umar, S., ⁴Abdullahi, S., ^{5,6}Aliyu, B.S.¹Private Health Institution Management Agency (PHIMA), Ministry of Health, Kano State²Department of Human Physiology, Faculty of Basic Medical Sciences, ³Department of Pharmacognosy and Herbal Medicine, Faculty of Pharmaceutical Science, Bayero University, Kano⁴Department of Horticultural Technology, Audi Bako College of Agriculture, Danbatta, Kano State⁵Department of Applied Biology, School of Science & ICT, Federal University Babura, Jigawa State.⁶Department of Plant Biology, Faculty of Life Sciences, Bayero University, Kano.Corresponding author: sadikumagajiwudil63@gmail.com Phone: 08062113263**ABSTRACT**

Traditional birth attendants and barbers are the first people to attend to newly borne, serving a preventive and curative role. This study aimed to evaluate the perceptions and practices of traditional birth attendants and barbers in maternal and child health in Kano State. A mixed-methods approach was employed, primarily using structured questionnaire to collect quantitative data from traditional birth attendants and barbers. In-depth interviews, focus group discussions, and observational studies provided additional qualitative insights. Results indicated that 80 % of respondents are familiar with maternal diseases, with hypertension (50 %), Postpartum hemorrhage (20 %), and pre-eclampsia (30%) being the most common. All respondents could identify the symptoms of these diseases. The spread of these diseases was described as moderate by 70 % of participants. The age group most affected was 30-45 years (60 %). To prevent the spread of these diseases, 80 % of respondents use herbal medicine, while 20 % use orthodox medicine. For treatment, 60 % rely on traditional methods, and 40 % use modern methods. Half of the respondents indicated that 30 % of women delivered under the care of traditional birth attendants, while the other half indicated 40 %, delivered under the supervision of the most experience woman in the family and 30 % delivered in Government/Private Hospital especially if the condition was complicated. In conclusion, these findings provide valuable insights into integrating traditional practices within contemporary health care frameworks in order to improve health outcomes in the communities.

Keywords: Maternal health, birth attendant, barbers, medicinal plant

PHCOG-003:
**PHARMACOGNOSTIC STUDIES AND DEVELOPMENT OF QUALITY CONTROL
PARAMETERS FOR THE WHOLE PLANT OF *STRIGA HERMONTICA* (DEL.) BENTH
(OROBANCHACEAE)**

*¹Balaraba, H.D., ¹Musa, K.Y., ¹Katsayal, U.A., ²Shehu, D.M.

¹Department of Pharmacognosy and Drug Development, Faculty of Pharmaceutical Sciences,
Ahmadu Bello University Zaria, Nigeria

²Department of Zoology, Faculty of Life Sciences, Ahmadu Bello University Zaria, Nigeria

*Correspondence: balarabadanladi@gmail.com, Phone: +234-8033662861

ABSTRACT

Striga hermonthica (Del.) Benth commonly known as witch-weed. It is used as a medicinal plant in some parts of Africa and India for the treatment of leprosy, leprosy ulcers, pneumonia, fungal infections, liver diseases and diabetes. The present study was carried out to determine some important pharmacognostic parameters of *S. hermonthica* whole plant which will assist in standardization for quality, purity and sample identification. Evaluation of the fresh, powdered and anatomical sections of the whole plant were carried out to determine the macromorphological, micromorphological, chemo-microscopic and some physicochemical parameters. The study showed that powder has greenish colour, rough texture and fracture with characteristics taste and is odourless. Microscopic examination of the leaf revealed the presence of anomocytic type of stomata and covering trichomes on both adaxial and abaxial surfaces. The transverse section of stem and root revealed some prominent features such as the trichomes, epidermis, cortex, phloem, xylem and pith. The powder sample revealed abundant calcium oxalate crystals scattered throughout the sections, which are prism-type in shape and fibres. Chemo-microscopic characters present include; lignin, starch, cellulose, tannin, suberin/cutin, CaCO₃ and calcium oxalate crystals. Physicochemical parameters (as percentage of the dry power) such as moisture (loss on drying) (7.43), total ash (5.83), water soluble ash (3.40), acid insoluble ash (1.83), ethanol extractive value (8.33) and water extractive value (11.33). The pharmacognostic parameters observed in this study will be of help in correct identification and quality control of *S. hermonthica*.

Keywords: *Striga hermonthica*; microscopy; pharmacognostic standardization; physico-chemical standards

PHCOG-004:
ADOPTION OF HERBAL MEDICINES IN MANAGEMENT TROPICAL DISEASES

Kachako, Y.M.

KIMEC College of Traditional Medicine

Corresponding author: dr.kachako@gmail.com Phone: 08036420792

ABSTRACT

For ages, traditional medicines have depended on natural products to treat many diseases. Plants are a source of a wide range of natural products that possess various therapeutic properties. Knowledge adhered by the traditional medicine system has paved the way for the ongoing exploration of medicinal plants for manufacturing pharmaceutical products. More than 85–90% of the world's population depends on the traditional medicine system for combating various diseases. Tropical disease is any disease that is indigenous to Tropical or subtropical areas of the world or that occurs principally in those areas. Examples of tropical diseases include: fever, malaria, cholera, Chagas disease, yellow fever, and dengue. Herbal medicine employs the use of plant to treat diseases which is also a part of traditional medicine. The paper aims to discuss fever within the context of traditional medicine, how to identify, diagnose and treat fever. Its behavior and its temperament. Fever is a temporary increase in body temperature above 37°C. A fever is usually caused by an infection. Fever can be a sign or a symptom of a disease. In conclusion, traditional medicine has its own way of treating fever effectively with less side effect and adverse reactions.

Keywords: Traditional medicine, tropical diseases, fever, natural products

PHCOG-005:**ETHNOMEDICINAL SURVEY OF PLANTS USED IN THE TREATMENT OF TYPHOID AND MALARIA BY TRADITIONAL MEDICAL PRACTITIONERS IN GOMBE LOCAL GOVERNMENT AREA OF GOMBE STATE, NIGERIA**¹Sabo, I., ¹Sulaiman, U.M., ¹Ibrahim, H.M., ²Zakariyya, A.M.¹Faculty of Pharmaceutical Sciences, Gombe state University, Gombe²Department of Biological Sciences, Sule Lamido University, Kafin HausaCorrespondence e-mail. Sabo.i@gsu.edu.ng**ABSTRACT**

Herbal medicine plays a significant role in traditional therapeutic practices in regions like Gombe local Government area where majority of the population resort to herbs in treating infectious parasitic and pathogenic diseases like malaria and typhoid. Research indicates that Malaria is the primary cause of mortality among children and pregnant women in developing nations, such as Nigeria. This research aims to document plants used by traditional medical practitioners (TMPs) in Gombe local government area in the treatment of malaria and typhoid. Ethnobotanical data were collected through structured questionnaires after obtaining informed consent from 39 respondents, primarily Traditional Medical practitioners. The study identified a total of 24 plant species used for the treatment of malaria, with 88 citations recorded, and 35 plant species used for the treatment of typhoid, with a total of 102 citations. The majority of respondents (82%) were males, while 18% were females. The plant species with the highest frequency of citation for malaria treatment included *Citrus lemon*, *Mangifera indica*, *Eucalyptuscamaldulensis*, and *Psidium guajava*. For typhoid treatment, the most cited plant species were *Mangifera indica*, *Carica papaya* and *Guiera senegalensis*. The survey revealed that the identified plant species belonged predominantly to the families *Anacardiaceae*, *Myrtaceae*, *Fabaceae*, and *Moraceae*, indicating their significant role in local medicinal practices. This study provides valuable insights into the ethnomedicinal knowledge and practices of the community in Gombe LGA, highlighting the diversity of plant species utilized for treating malaria and typhoid.

Keywords: ethnomedicine, malaria, typhoid, Gombe LGA**PHCOG-006:****ETHNOBOTANICAL SURVEY: A COMPREHENSIVE REVIEW OF MEDICINAL PLANTS USED IN TREATMENT OF GASTRO INTESTINAL DISEASES IN KANO STATE, NIGERIA**^{1*}Sulaiman, A.N., ²Arzai, A.H., ³Taura, D.W.¹Department of Microbiology, Ahmadu Bello University, Zaria, Nigeria²Department of Microbiology, Bayero University, Kano, Nigeria*Corresponding author: sulaimanasmou@yahoo.co.uk, Phone 08036906393**ABSTRACT**

This research provides ethnobotanical data concerning traditional use of medicinal plants for treatment of gastrointestinal disease in Kano State-Nigeria. The aim was to review the actual knowledge about medicinal plants used to treat gastrointestinal diseases by traditional medical practitioners (TMPs) in Kano metropolis. A structured questionnaire was used to collate ethnobotanical data from TMPs within Kano metropolis. This included local (Hausa) names of the medicinal plants, their medicinal uses, plant part used, method of preparation and route of administration. A total of 33 plants belonging to 24 families were identified. The Moraceae family was the most commonly used plant family representing 17.4% of all the medicinal plant species. The plant part most frequently used were the leaves (47.8%), followed by the bark/stem (34.8%), roots (10.9%), whole plant (4.3%) and the seeds (2.2%). Most of the TMPs obtained their extracts by decoction. The most often recurring gastrointestinal disease was stomach ache (36.5%), diarrhoea (30.8%) and dysentery (19.2%) using one or more of the medicinal plants. The three most frequently used plants were: *Bridelia ferruginea* (90.0%), *Psidium guajava* (90.0%) and *Khaya senegalensis* (83.3%). TMPs in Kano metropolis possess a wealth of information on medicinal plants and their applications. This survey can help scientists and researchers in identifying those plants with medicinal properties that may be useful in the development of new drugs

Keywords: Gastrointestinal disease, treatment, medicinal plants, Kano

PHCOG-007:**AWARENESS AND ATTITUDE TOWARDS HERBS AND THEIR INTERACTIONS WITH ORTHODOX MEDICINES AMONG PATIENTS ATTENDING TWO SECONDARY HOSPITALS IN KADUNA STATE****¹Balarabe, U.H., ²Solomon, K.J., ³Aliyu, S., ⁴Lawal, B.K.**¹Ahmadu Bello University, ²Pharmacy Department, Rapha Specialist Hospital, Kaduna,³Department of Clinical Pharmacy and Pharmacy Practice, Ahmadu Bello University, Zaria, Nigeria,⁴Department of Clinical Pharmacy and Pharmacy Management, Kaduna State University, Kaduna

*Corresponding author: ibnhassan84bl@gmail.com, Phone: 08036129404

ABSTRACT

The use of herbal medicines is gaining attention globally, particularly among patients with chronic diseases. Such products are used as complimentary or alternative to the conventional orthodox medicines. This study assessed patients' awareness and attitude in Jema'a Local Government regarding herbal medicines and their interactions with orthodox medicines. A cross-sectional descriptive survey was conducted among patients at Sir Patrick I. Yakowa Memorial Hospital and Fadan Kagoma Rural Hospital in Kaduna State. Semi-structured, self-administered questionnaires were administered to a convenient sample of 222 patients. Data were analyzed using descriptive statistics. Most participants were female (61%). A striking 89.19% used herbal medicines recommended by relatives (65.31%) or friends (22.07%). An overwhelming 99.4% preferred herbal over orthodox medicines, and 89.55% used them alongside prescribed orthodox medicines. Herbs were sourced from backyard farm (60.8%) or local shops (29.28%). Most commonly used were *Zingiber officinale* (ginger), *Cymbopogon citratus* (lemon grass), *Azadirachta indica* (neem), *Moringa oleifera* (Moringa) and *Mangifera indica* (mango) leaves. Patients in Jema'a Local Government showed high awareness of herbal and their potential interactions with orthodox medicines. However, their attitude towards herbal medicines, though positive, was potentially risky. Healthcare professionals at all levels should integrate herbal medicines discussions into patient consultations for safe use.

Keywords: Herbs, orthodox, knowledge, attitude**PHCOG-008:****ETHNOBOTANICAL SURVEY OF POTENTIAL HERBAL REMEDIES FOR THE TREATMENT OF SARS-COV-2 AND ITS SYMPTOMATIC COMPLICATIONS IN ZARIA, NIGERIA****^{*}Ibrahim, H., Danmalam, U.H., Ibrahim, G., Shehu, U.F., Shehu, S., Katsayal, U.A.**

Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria,

*Corresponding author: haajara49@yahoo.com, Phone: 08060902839

ABSTRACT

The novel coronavirus "SARS-CoV-2" has caused many cases of viral pneumonia since December, 2019. Traditional herbal medicines are getting significant attention in global health. In China, traditional herbal medicine played a prominent role in the strategy to contain and treat severe acute respiratory syndrome (SARS). Eighty per cent of African populations use some form of traditional herbal medicine. The project is aimed at surveying some selected traditional medical practitioners (TMPs) within Zaria and its environs, Kaduna State-Nigeria. A cross-sectional survey was conducted within Zaria and its environs from October to November, 2022, where TMPs were interviewed using a structured questionnaire. A total of 60 respondents were interviewed which comprise of 45 (75%) males while 15 (25 %) females. Fifty-two (52) plants were obtained. The frequency of use gave RFC of, 0.3, 0.12, 0.05, 0.03 and 0.02. The only and most frequently used plant being *Anogeissus leiocarpus* (0.3), followed by *Allium sativum* (0.12). The phytochemical screening gave various phytochemical constituents including carbohydrates, flavonoids, tannins, cardiac glycosides, terpenes, steroids and alkaloids. These plants and their various constituents have potential for use in the management of SARS CoV-2 symptoms and complication.

Keywords: SARS-CoV-2, phytochemical screening

PHCOG-009:**MEDICINAL BRYOPHYTES ACROSS AFRICA: COUNT BY COUNTRY; CHEMICAL CONSTITUENTS, AND USAGE OF SELECTED SPECIES: A REVIEW.*****Abubakar, I.**

Biotechnology Advanced Research Centre, Sheda Science and Technology Complex, Abuja, Nigeria.

*Corresponding author: isyakuabubakar2@gmail.com, Phone: +2348037269373

ABSTRACT

Medicinal bryophytes, which are well-known remedies among tribal people of different parts of the world, are also widely used by many tribal communities in Africa. This review aims to highlight a country-by-country count of the medicinal bryophytes found in Africa. Elsevier, PubMed, MDPI, ResearchGate, and Google Scholar are the databases that are utilized to locate publications that contain terms like "medicinal bryophytes of Africa," "chemical constituents of bryophytes," "distribution of bryophytes in Africa," and "bryophytes medicinal use." A total number of all the bryophytes found in each African nation, along with information on chemical constituents, and usage of the most significant ones, has been noted from various sources. It is clear from this review that bryophytes in Africa are an important component of the overall biodiversity of the continent. In the past, bryophytes in Africa were considered not so useful, but now they have been discovered to contain rich molecules that can serve as an efficient source of many phytochemicals that could be used for novel drug discovery.

Keywords: Bryophytes, Africa, secondary metabolites.**PHCOG-010:****ETHNO MEDICINAL PLANTS USED FOR TREATMENT OF MALARIA IN ZARIA LOCAL GOVERNMENT, KADUNA STATE NIGERIA****¹Namadi, S., ²Babangida, S.M.**¹Department of Botany, Ahmadu Bello University, Zaria,²Dept of Biological Sciences, Kano State College of Education and Preliminary Studies

*Corresponding author: hubbidaha@gmail.com, Phone: 08038476399

ABSTRACT

There is an increase resistance of malaria parasites to Artemeter, one of the affordable commonly used drugs for malaria in Nigeria. The Study aims to document ethnomedicinal plants used in the treatment of malaria in some Areas of Zara, Kaduna State. Semi-structured questionnaire and interview were used to gathered ethnomedicinal data from traditional healers and people who use traditional medicine. The study involved 40 informants 22 men and 18 women aged 32-60 years from some district of Zara Local government Area. A total of 60 plants belonging to 21 families were use in treatment of malaria. *Newbouldia leavis*, *Chromolea odorata*, *Morinda centrifolia*, *Azadirachta indica*, and *Ageratum conyzoides* plants were found to be used mostly in the cure of malaria, by oral administration in the study area. The parts of plant used could be roots, bark leaves or whole plant. The different part of the plant can be combined to have a recipe. The study highlights potential sources for the development of new anti-malaria drugs from ingenious medicinal plant found in Zara local government, Kaduna State Nigeria.

Keywords: Ethnoedicinal, malaria, indigenous plants

PHCOG-011:
PHARMACOGNOSTIC STUDIES OF THE LEAF OF HURA CREPITANS. L PLANT
(EUPHORBIACEAE)

¹*Adeyemo, A.S.

¹Department of Pharmacognosy, Ahmadu Bello University, Zaria, Nigeria

*Corresponding Author: adetutuadeyemo.aa@gmail.com, Phone: 08134563756

ABSTRACT

Hura crepitans, commonly referred to as sandbox tree, is a plant commonly used in traditional medicine to treat skin diseases, rheumatism, and intestinal worms. The aim was to determine pharmacognostic parameters that could be useful in the identification and authentication of the plant. The plant was identified in the Botany Department, ABU, Zaria. Fresh leaf was collected from the Zango (Zaria) area. WHO, 2011's methodology was adopted. Leaf-margin-serrate, glabrous surface, apex-caudate, base-cordate, leaf arrangement-alternate, shape-ovate. Chemo-microscopy of the powdered leaf revealed cell wall materials and cell inclusions such as tannins, Calcium oxalate crystals, and calcium carbonates. The trichome length was 750-755 μm , stomata length (the upper epidermis) -25.00 (30.00 \pm 0.40) 35.00 μm , lower epidermis -20.00 (24.00 \pm 0.10) 28.50 μm ; stomata width for the upper epidermis-10.00 (12.20 \pm 0.23) 15.30 μm ; lower epidermis was 15.80 (20.50 \pm 0.60) μm ; epidermal cells length (upper layer)- 34.00 (52.00 \pm 0.20) 62.00 μm ; lower epidermis ranged from 35.00 (60.00 \pm 0.20) 85.50 μm . Qualitative microscopy revealed the presence of polygonal epidermal cells, multicellular covering trichomes, xylem, phloem, and anomocytic stomata which are diagnostic tools for standardization.

Keywords: *Hura crepitans*, μm - micrometer, pharmacognostic parameters

PHCOG-012:
ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS IN BOTANIC GARDENS OF KANO
STATE METROPOLIS

*Sani, S.B., Ya'u, S.A., Haruna, M.

Department of Biology, Aliko Dangote University of Science and Technology, Wudil

*Corresponding author: sakinasanibuhari@yahoo.com, Phone: 08035405538

ABSTRACT

Kano state metropolis is rich in botanic gardens operated by non-governmental bodies which are mostly located along the roadside. Their services are not limited to buying and selling of ornamental plants but also growing medicinal plants for herbal medicine. This study was undertaken to identify medicinal plants in the botanic garden of Kano metropolis as well as to document their medicinal practices by the inhabitants of the study area. Various gardens were identified by snowball sampling and the informants (gardeners) provided information via a semi-structured questionnaire. A total of 60 informants participated in this study and most of them fall between 21-30 years. They divulged the used of 55 medicinal plants for medicinal purposes. The plants were used in the treatments 21 disease conditions including typhoid, malaria, yellow fever, infection, pile, skin diseases etc. Decoction and oral administration were the most mentioned method of preparation and administration respectively. This study revealed that herbal medicine among gardeners is a common practice in Kano metropolis. Their folkloric practices need to be scientifically validated. Growing of our indigenous plants in the gardens is recommended as majority of encountered plants were exotic. This is for their conservation and sustainable development.

Keywords: Kano, herbal medicine, ethnobotany

PHCOG-013:**PHARMACOGNOSTIC AND TOXICOLOGICAL EVALUATION OF METHANOL STEM BARK EXTRACT OF *FICUS PLATYPHYLLA* IN MALE WISTAR RATS.**^{1*}Galadanchi, F.A., ²Shinkafi, T.S., ³Ibrahim, M.M., ⁴Ahmed, N.Y.¹University of Chinese Academy of Sciences, Beijing 100049, China.,²Department of Biochemistry and Molecular Biology, Faculty of Chemical and Life Sciences UDUS,³Institute of Biomedicine and Biotechnology, Shenzhen China,⁴State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming China

*Corresponding author: fateemahag@gmail.com, Phone: +2348066401994

ABSTRACT

Ficus platyphylla, the large-leaved fig native to tropical Africa, is traditionally used for ailments such as diabetes and cardiovascular disease. This study evaluated the pharmacognostic characteristics and safety profile of its methanol stem bark extract in male Wistar rats to support its medicinal use. The Pharmacognostic parameters, such as macroscopic, microscopic as well as phytochemical analysis of *F. platyphylla* were evaluated using standard methods. Acute toxicity of *F. platyphylla* was assessed with 5000 mg/kg in rats, observed for 24 h. Sub-chronic toxicity involved daily treatment of rats with 250, 500, and 1000 mg/kg doses for 28 days. Blood and organ samples were collected on day 29 for biochemical, and histological analysis. Macroscopically, *F. platyphylla* stem bark is thick, rough, and greyish-brown. Microscopic examination revealed cork cells, stone cells, calcium oxalate crystals, and phloem fibers. Phytochemical screening showed alkaloids, flavonoids and terpenoids. The methanol extract showed no acute toxicity up to 5000 mg/kg. Sub-chronic indicated no significant changes in hematological, renal, and hepatic indices. Histology showed normal kidney and liver at 250 mg/kg, moderate glomerular necrosis and Kupffer cell hyperplasia at 1000 mg/kg. The methanol stem bark extract of *F. platyphylla* is pharmacognostically rich and shows a favorable safety profile at lower doses, with minimal toxicity at higher doses. These findings support its traditional medicinal use at recommended dosages.

Keywords: *Ficus platyphylla*, pharmacognostic, toxicological evaluations**PHCOG-014:****PHARMACOGNOSTIC STUDIES, PHYTOCHEMICAL ANALYSIS AND MINERAL CONTENTS OF *JATROPHA TANJORENSIS* (L) LEAF**^{1*}Abdussalam, A.O., ²Isa, H., ³Mahmud, H.S.¹Department of Pharmaceutics and Industrial Pharmacy, Ahmadu Bello University, Zaria,²Department of Pharmacognosy, Ahmadu Bello University, Zaria,³Department of Pharmaceutics and Industrial Pharmacy, Ahmadu Bello University, Zaria

*Corresponding author: hassanatuaisa@gmail.com, Phone: 08077871680

ABSTRACT

Jatropha tanjorensis (JT) is an herb that belongs to the family Euphorbiaceae which is commonly known as ‘hospital too far’ and Ka-fi ugwu in Northern Nigeria. The fresh leaves are used in making soup, macerated alone or with other herbs to boost blood in pregnancy, anaemia and other disease conditions. The present study evaluated the pharmacognostic properties, mineral and cyanide compositions of JT harvested in Samaru, Zaria, Nigeria as well as other physicochemical and phytochemical properties in relation to findings from previous studies. Standard procedures were employed in determining pharmacognostic features of the leaf such as organoleptic, macroscopic, qualitative and quantitative microscopy. Phytochemical analysis on the leaf powder included tannin, flavonoid, anthraquinones, cyanide tests etc. Atomic absorption spectroscopy (AAS) was employed in the qualitative and quantitative determination of minerals such as Cr, Cu, Fe, Mg, Mn and Pb. The JT leaves possess diagnostic features that can be used to differentiate it from other species in the same family and other plants. The cyanide content was found to have decreased significantly ($p < 0.05$) after drying. JT leaves revealed the presence (mg/kg) of Mg (255.40), Fe (138.15), Mn (46.65), Cr (19.80) and Cu (4.40) and Pb (13.30) which was slightly above the permissible limit for medicinal plants. In conclusion, Mg and Fe which are blood regulating and boosting minerals were found in JT at adequate levels and drying of JT leaves in controlled environment was effective in reducing the cyanide concentration.

Keywords: *Jatropha tanjorensis*, cyanide, minerals

PHCOG-015:

PHARMACOGNOSTIC AND LARVICIDAL EVALUATION OF *ARTEMISIA ANNUA* L. SEEDS ON *ANOPHELES GAMBIAE* GILES¹Bello, H., ²Musa, A.O., ³Musa, H.M., ⁴Auwal, H.M., ⁵Abdulsalami, H.^{1,2,3,4}Department of Botany, Ahmadu Bello University, Zaria, Nigeria,⁵Department of Plant Biology, Federal University of Technology Minna, Niger State, Nigeria

*Corresponding author: hbello855@gmail.com, Phone: 07064795286

ABSTRACT

Pharmacognostic standardization is an integral aspect of evaluating crude drugs. There is a need to create alternative tools for vector control to mitigate the side effects of synthetic methods. This study evaluated the pharmacognostic parameters and larvicidal effect of *Artemisia annua* L. seeds on *Anopheles gambiae*. Pharmacognostic evaluation and larvicidal activity against 3rd instar *Anopheles gambiae* larvae were done according to WHO standard procedures. The moisture content of the seed was found to be (10.11 ±0.56 %w/w), total ash value (14.75±1.93 %w/w), acid insoluble ash (2.75±0.25 %w/w), water soluble ash (7.25±0.75 %w/w), alcohol extractive value (26.68±0.33 %w/w) and water-soluble extractive value (16.8±0.00 %w/w). The acute toxicity study was above 5000 mg/kg bw. Carbohydrates, alkaloids, flavonoids, tannins, terpenoids/steroids, glycosides and saponins were present in the seed extract. The LC₅₀ and LC₉₀ values were 582.694 ppm and 896.354 ppm respectively. The observed larval mortality increased with increasing concentration of the extract indicating methanol seed extract showed dose-dependent larvicidal activity. *Artemisia annua* has great potential as a source of bioactive compounds and can be utilized as a vector control to prevent the spread of malaria.

Keywords: *Artemisia annua*, toxicity, phytochemicals, seeds, malaria

PHCOG-016:

ETHNOVETERINARY KNOWLEDGE AND PRACTICES OF OVINE FLOCK OWNERS IN THE MANAGEMENT OF LAMENESS DUE TO INTERDIGITAL POUCH INFLAMMATION IN ZARIA AND ENVIRONS, NIGERIA

^{1*}Usman, B., ²Hassan, A.Z., ²Fadason, S.T., ³Abdullahi, U.S., ¹Kaltungo, B.Y., ¹Babashani, M., ²Andrew, A., ²Kilani, M.A., ²Isiaka, M.L., ²Ahmed, A.L.¹Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, Nigeria²Department of Veterinary Surgery and Radiology, Ahmadu Bello University, Zaria, Nigeria³Department of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria*Corresponding author: usmanab406@gmail.com, Phone: +2347063005085

ABSTRACT

Lameness conditions, including the one caused by the inflammation of the interdigital pouches, pose a serious challenge to profitable sheep husbandry. A questionnaire survey was used to determine, among others, the ethnoveterinary practices of ovine flock owners in the management of the condition. Modified closed format questionnaires were administered to sheep (flock) owners in 3 wards each, from 3 local government areas that constituted Zaria and environs as the study area. The result of the study indicated that the most common management practice among flock owners in cases of lameness due to interdigital pouch inflammation in the study area was expression of the content of the pouch [40 (23.5%)] before infiltrating ethnoveterinary preparations [40 (42.1%)]. The practice of expression of the pouch content before infiltration and removal of the pouch had the fastest rate of recovery according to flock owners experiences. The most popularly used ethnoveterinary products by flock owners for application into the pouch or the wound cavity created after its removal were shea butter cream [10 (10.5%)], lye extract from ash or soot [8 (8.4%)], potash [7 (7.4%)] and bark of thorn mimosa tree [7 (7.4%)]. It was concluded that ovine flock owners in the study area have ethnoveterinary knowledge and practices of managing lameness due to interdigital pouch inflammation which remained untapped. Researches into such ethnoveterinary preparations with a view to identifying the active ingredients involved in order to possibly pave ways of developing cheaper drugs from the grass root sources was recommended.

Keywords: Ovine, lameness, interdigital pouch, ethnoveterinary preparations, inflammation.

PHCOG-017:**MATERNAL DIETARY PRACTICES AND NUTRIENT COMPOSITION OF DIETS OF LACTATING MOTHERS IN ZARIA LOCAL GOVERNMENT AREA OF KADUNA STATE****^{1*}Abdullahi MM, ²Balarabe F, ³Maliki A U, ⁴Musa H A, ⁵Salihu A A, ⁶Umar A.B, ⁷Dogo J S, ⁸Balarabe R**¹Department of Nursing Sciences, Faculty of Allied Health Sciences, A.B.U Zaria-Nigeria

*Corresponding author: siyaamax@gmail.com, Phone: +2348036531668

ABSTRACT

For the health of both the mother and the child, optimal diet during postpartum is crucial. In Hausa culture, puerperium is a period that is eventful right from day one after birth till the end. This study aimed to investigate maternal dietary practices of lactating mothers in Zaria Local Government Area of Kaduna State. Cross sectional descriptive design was used. A total of 384 respondents were recruited for the study using multi stage random sampling technique. A structured interviewer questionnaire was used to collect data which were organized and analyzed with SPSS version 23. The result shows that the mean age of the respondents is 30 years, the majority (61.3%) of the respondents were Hausa and majority (83.9%) of postpartum mothers eat very hot food after delivery, 83.1% indicated that they increase the quantity of food they eat after birth, 70.4% of the respondents take liberal fluids, 67.0% of the respondents avoid intake of sweet drinks/snacks, while 65.7% of the respondents eat a lot of peppered liver and meat after delivery, 52.7% of the respondents eat a lot of peppery food after birth, 51.9% of the respondents ingest pap made with gruel and plenty potash, 46.2% of the respondents indicate use of herbal supplement like Fenugreek (Hulba) and Green unripe papaya for milk production. It was concluded that postpartum mothers in Zaria L.G.A of Kaduna State do adhere to strict dietary practices after birth

Keywords: Maternal, dietary, nutrient, lactating**PHCOG-018:****ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED IN THE MANAGEMENT OF DIABETES BY THE TRADITIONAL MEDICAL PRACTITIONERS IN GOMBE STATE, NIGERIA****^{*1,2}Yakubu, U.A., ¹Abubakar, A.Z., ¹Shehu, S.**^{*1,2}Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria.²Department of Pharmacognosy and Drug Development, Gombe State University, Gombe, Nigeria.*Corresponding author: ualiyakubu@gmail.com Phone: 2348034674918**ABSTRACT**

Diabetes constitutes a major public health problem around the world. medicinal plants constitute the fundamental basis of traditional medicine in many African countries and according to the World Health Organization (WHO) about 80 % of the population around the world depends on traditional medicine, mostly herbal remedies, for their primary health care needs. This study aimed to document medicinal plants used for management of Diabetes in Gombe State Nigeria. An ethnomedicinal survey of commonly used medicinal plants was carried out among the people of Gombe State consisting of 11 local government areas. A total of 200 respondents were interviewed using semi-structure questionnaire using snowball sampling techniques. Results obtained from the survey shows that a total of 35 plant species belonging to 22 families were found to be useful in the treatment of diabetes. Fabaceae, Apocyanaceae, Malvaceae and Combretaceae families were the most represented. The calculated RFC (Relative frequency of citation) indicated that species such as *Anisopus manii*, *Cissus populnae*, *Leptadania hastata*, *Parkia biglobosa* and *Moringa oleifera* were the most used in the management of diabetes by traditional medical practitioners in Gombe. The methods of preparation were either by maceration, infusion or decoction. The oral and topical were the major routes of administration. The sources of medicinal plants were mostly from the wild. This study might aid in the identification of the potent antidiabetic agents using quantitative data analysis and a recommendation for the conservation of the potent plant species for future use.

Keywords: Diabetes, traditional medical practitioners, conservation.

PHCOG-019:**UNLOCKING THE POTENTIAL OF THE BAOBAB TREE FOR HERBAL MEDICINE*****¹Ibrahim, F.B., ²Ibrahim, H., ³Bayero, H.A.**¹Hajnaby Ventures, Unit A2, Technology Incubation Centre, Rigacukun, Kaduna²Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria³Department of Nursing Sciences, Ahmadu Bello University, Zaria*Corresponding author: fatimabibrahim2002@gmail.com**ABSTRACT**

The *Adansonia digitata* (baobab tree), often referred to as the "Tree of Life," is a remarkable plant known for its nutritional and medicinal properties. Native to the African Savannah, the baobab has been traditionally utilized for centuries by indigenous communities for its myriad health benefits. This paper aims to explore the untapped potential of the baobab tree by conducting a comprehensive review of existing literature, we analyze the tree's bioactive compounds, including vitamins, minerals, antioxidants, and anti-inflammatory agents. Findings highlight the diverse applications of baobab in treating ailments such as inflammation, gastrointestinal issues, and skin conditions. Furthermore, we discuss the potential of baobab fruit pulp, seeds, leaves, and bark in developing new therapeutic agents. The paper also addresses the challenges and opportunities in integrating baobab into mainstream herbal medicine, including sustainability, cultivation practices, and market potential. Our aim is to encourage broader adoption of baobab in herbal medicine and other industrial uses, fostering collaboration between researchers, practitioners, and policymakers. By unlocking the full potential of the baobab tree, we can contribute to the development of effective, natural, and sustainable healthcare solutions. Hajnaby Ventures was opportuned to be part of the maiden edition ECOWAS Forum for African Research and Innovation (FARI) CONFERENCE IN 2022 and received the 3rd prize award for our presentation on The Domestication and Development of the Baobab Value Chain. As an industry practitioner we are willing to collaborate with researchers on the development of the Baobab derivatives for sustainability.

Keywords: *Adansonia digitata* , Baobab, potentials and value chain**PHCOG-020:****PLANTS USED IN TREATMENT OF GASTROINTESTINAL DISORDER IN NORTH SENATORIAL DISTRICT OF KANO, KANO STATE*****¹Saifullahi, U., ¹Anas, A., ²Halilu, E.M.**¹Department of Pharmacognosy and Herbal Medicine, Faculty of Pharmaceutical Sciences, Bayero University Kano.²Department of Pharmacognosy and Ethnomedicine, Faculty of Pharmaceutical Sciences,

Usman Danfodiyo University Sokoto, Nigeria.

*Corresponding author: sumar.phc@buk.edu.ng; Phone: 07032856542**ABSTRACT**

An ethnomedical survey of plants used in treatment of gastrointestinal disorders was carried out in Kano-North Senatorial district, Kano State. The aim of study was to document the plants used in the treatment of gastrointestinal disorders in Kano-North senatorial district. Information on the local names, morphological parts used and forms of preparation was established from traditional medical practitioners, herb sellers, vendors in traditional medicine and local people, using designed questionnaire. Twenty-seven (27) plant species constitute seventeen families were found to be commonly used in the traditional medical care of gastrointestinal disorder. Twenty seven percent (27 %) of the plant used in treating dysentery and other gastrointestinal disorder were used in treatment of diarrhea alone, while forty percent (40 %) of the different plants were implicated in the treatment of various stomach problems. The bark and stem bark were the most commonly used parts, followed by root, while powdered plant taken with semi-liquid food (e.g. pap) and infusion are the most frequent method of preparation. The traditional medical practitioners/healers in this region possess rich knowledge of medicinal plants. The recorded medicinal plants can serve as a basis for further phytochemical and Pharmacological studies

Keywords: Medicinal plant, gastrointestinal, practitioners and treatment

PHCOG-021:**UNLOCKING THE POTENTIAL OF MEDICINAL PLANTS: THE ROLE AND RELEVANCE OF SOIL ENZYMES ON PHYTOCHEMICAL COMPOSITION***¹Gabasawa, A.I., ²Jawa, M.I.¹Department of Soil Science, Faculty of Agriculture/Institute for Agricultural Research, Ahmadu Bello University, Samaru, Zaria, Nigeria²MIJ College of Traditional Medicine and Acupuncture Damaturu, Dikumari-Potiskum Road, Damaturu, Yobe State, Nigeria.*Corresponding author: algabasawiyvu@yahoo.com; aigabasawa@abu.edu.ng Phone: +234(0) 806 5409 850**ABSTRACT**

The increasing interest in natural remedies has led to a resurgence in the study of medicinal herbs. This paper explores the potential of eight specific plants - beetroot (*Beta vulgaris*), Arabian garlic (*Allium sativum*), coriander (*Coriandrum sativum*), ginger (*Zingiber officinale*), bitter leaf (*Vernonia amygdalina*), African basil (*Ocimum gratissimum*), turmeric (*Curcuma longa*), and aloe vera (*Aloe barbadensis* Miller) - focusing on their efficacy and phytochemical composition. A critical aspect of this review is the role of soil enzymes in influencing these parameters. Soil enzymes are biological catalysts that facilitate biochemical reactions in the soil, affecting nutrient availability and plant health. This paper aims to elucidate how variations in soil enzyme activity can impact the growth conditions of these medicinal plants, thereby influencing their phytochemical profiles and therapeutic potentials.

Keywords: Soil enzymes, phytochemical composition, medicinal efficacy, African basil

PHCOG-022:**ETHNOBOTANICAL STUDY OF SOME PLANT USED IN TREATMENT OF DIARRHOEA IN LAPAI LOCAL GOVERNMENT AREA OF NIGER STATE***¹Yahaya, I., ¹Dawud, I., ²Lawal, M., ³Efunsayo, O.R., ⁴Abdul, N.B.¹Department of Biology, Faculty of Natural Sciences, Ibrahim Badamasi Babangida University Lapai, Niger State, Nigeria.²Department of Pharmacognosy and Ethnopharmacy, Usman Danfodio University, Sokoto, Nigeria³Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria.⁴Department of Science Laboratory Technology, Kogi State Polytechnic, Lokoja, Kogi State, Nigeria.Corresponding author: iyahaya@ibbu.edu.ng Phone: 08061596330**ABSTRACT**

This work was aimed at survey of medicinal plants used in treatment of pre and post natal ailments. The use of structured questionnaire and oral interview were adopted. Questionnaire were administered directly to those who can read and write, while others were completed after oral interview using an interpreter. A total of 45 plants belonging to 16 families were surveyed. The species were mostly trees, shrubs and herbs, used to treat cases like running stomach, stomach pain, womb cleansing in older women, vomiting, food poisoning, among others. Parts of plants used include leaf, leaf sap, stem bark, whole plant and seeds. Water was found to be the primary solvent for infusion, decoction, concoction, and other mixes. Families with the highest plant species were Fabaceae (13.33%) followed by Maliaceae (11.11%), Poaceae, Musaceae, Moraceae (8.89%) and the least was seen in Grossulariaceae, Logainaceae and Ebeneceae (2.22%). The demographic data obtained revealed that 34 (75.56%) male and 11 (24.44%) female were interviewed. Based on level of education, 20 (44.44%) had no formal education, 12 (26.27%) have First school leaving certificate (FSLC) while 10 (22.22%) had secondary school certificate and 3 (6.67%) had tertiary education. On the practice duration, those between 25-35 years constitute 7 (15.56%), 36-45 years 15 (33.33%), 46 years and above 23 (51.11%). Majority of the informants were herbalist 20 (44.44%). This study has been able to pinpoint 45 plants claimed to be effective in management of diarrhea by herbalists, herb sellers, traditional healers and public health workers.

Keywords: Conservation, ethnomedicinal, disease, diarrhoea, plants, questionnaire

PHCOG-023:
**GOOD AGRICULTURAL PRACTICES IN THE CULTIVATION OF MEDICINAL PLANTS:
ROLE OF THE FIELD OF SOIL SCIENCE**

*¹Gabasawa, A.I., ²Jawa, M.I.

¹Department of Soil Science, Faculty of Agriculture/Institute for Agricultural Research,
Ahmadu Bello University, Samaru, Zaria, Nigeria

²MIJ College of Traditional Medicine and Acupuncture Damaturu, Dikumari-Potiskum Road,
Damaturu, Yobe State, Nigeria.

*Corresponding author: algabasawiyvu@yahoo.com; aigabasawa@abu.edu.ng Phone: +234(0) 806 5409 850

ABSTRACT

The cultivation of medicinal plants is crucial for human health, but it faces sustainability challenges. Good Agricultural Practices (GAPs) can address these challenges, and soil science plays a vital role in GAPs. This paper explores the intersection of soil science and medicinal plant cultivation, highlighting the importance of soil preparation, management and microbiome enhancement for optimal growth and phytochemical production. We discuss soil conservation, nutrient management, crop rotation, irrigation, and soil microbiome strategies, supported by case studies. Our findings emphasize soil science's critical role in GAPs for medicinal plants, contributing to sustainable production, improved quality, and enhanced human health benefits. By integrating soil science into GAPs, medicinal plant cultivation can become more sustainable, efficient, and effective.

Keywords: Good agricultural practices, medicinal plants, soil science

PHCOG-024:
**DNA BARCODING OF *ANNONASQUAMOSA* USING RIBULOSE BISPHTHOSPHATE
CARBOXYLASE GENE MARKER**

*Adamu, A., Abubakar, A.Z. and Hairu, M.

Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria.

*Corresponding author: abdulrahmanadamu44@gmail.com Phone: 08065539723

ABSTRACT

Medicinal plants play a significant role in traditional and modern pharmacology, with *Annona squamosa*, commonly known as sugar apple, being one of them. In this study, we aimed to determine the DNA barcode of *A. squamosa* using the Ribulose Bisphosphate Carboxylase (RuBisCO) gene marker. Genomic DNA was extracted from fresh leaves of *A. squamosa* sourced from the Department of Pharmacognosy medicinal plants garden of Ahmadu Bello University, Zaria. The RuBisCO gene marker was amplified using polymerase chain reaction (PCR), and the resulting amplicons were subjected to agarose gel electrophoresis, which confirmed successful amplification. Subsequent DNA sequencing of the amplicons produced a nucleotide sequence of 559 base pairs. BLASTn analysis revealed a high similarity (99.46% to 100%) between the obtained sequence and known sequences in the NCBI database. Sequence alignment showed no gaps or nucleotide mismatches, indicating a high level of identity. Phylogenetic analysis further confirmed the taxonomic placement of *A. squamosa* within the Annonaceae family. The study demonstrates the efficacy of DNA barcoding using the RuBisCO gene marker for accurate identification of *A. squamosa*. This approach holds promise for authentication, conservation, and utilization of medicinal plants like *A. squamosa* in various applications.

Keywords: DNA barcoding, *Annona squamosa*, RuBisCo gene marker, phylogenetic analysis,

PHCOG-025:**ETHNO-BOTANICAL SURVEY OF PLANT SPECIES USED IN THE MANAGEMENT OF MENOPAUSE IN KANO STATE, NIGERIA***¹Umar, A.M., ²Namadina, M.M., ²Aliyu, B.S.¹Department of Remedial and General Studies, Audu Bako College of Agriculture, Dambatta²Department of Plant Science and Biotechnology, Bayero University, Kano*Corresponding author: hajiyaiyalle@gmail.com**ABSTRACT**

This ethno-botanical survey investigates the plant species traditionally used to manage menopause-related symptoms in Kano, Nigeria. Menopause, a significant phase in a woman's life marked by the cessation of menstrual cycles, often brings a range of physical and psychological symptoms. In many cultures, including those in Kano, traditional medicine plays a crucial role in managing these symptoms. The study aimed to document the diverse plant species utilized by local communities for this purpose, thereby preserving traditional knowledge and identifying potential sources for new therapeutic agents. Fieldwork involved structured questionnaires and interviews with 360 traditional healers, herbalists, and elderly women who are knowledgeable about local medicinal practices. Of the 360 respondents, females (83.3%), respondents of 31-40 years (41.7%), respondents with educational qualification (91.7%), respondents with no formal training (77.8%) dominates the practice of herbal medicine. A total of 36 plant species belonging to different families were identified and documented. *Scoparia dulcis* (6.8%), *Cassia mimosoides* (5.4%), *Entada africana* (10.4%), *Stereospermum kunthianum* (5.8%), *Acacia horrida* (7.8%) and *Albizia chevalieri* (11.5%). These plants are commonly prepared as decoctions, infusions, or powders and are administered orally or topically to alleviate symptoms such as hot flashes, mood swings, and sleep disturbances. The study highlights the importance of traditional medicine in managing menopausal symptoms in Kano, emphasizing the need for further pharmacological research to validate the efficacy and safety of these plants. By documenting this indigenous knowledge, the research contributes to the preservation of cultural heritage and opens avenues for the development of alternative treatments for menopause.

Keywords: Ethno-botanical, menopause, traditional healers, questionnaires**PHCOG-026:****ETHNOBOTANICAL SURVEY OF MEDICINAL POTENTIALS AND PHYTOCHEMICAL COMPOSITION OF *ACALYPHA WIKESIANA* Mull. Arg. IN ZARIA, KADUNA STATE, NIGERIA***¹Bichi, A.M., ¹Haruna, H., ²Mohammed, M.S.¹Department of Forestry and Wildlife Management, Ahmadu Bello University Zaria, Nigeria²Department of Plant Science, Ahmadu Bello University Zaria, Nigeria*Corresponding author: alaminmagaji90@gmail.com / aminunbichi@yahoo.com Phone: 07068188086/08054383661**ABSTRACT**

Acalypha wikesiana Mull. Arg. is known for its essential constituents required for good health in humans, pharmacological and phyto-pharmacological treatments. This study aimed at documenting and unraveling the medicinal potentials and phytochemical composition of *Acalypha wikesiana* (copper plants) leaf, stem and root in Zaria Local Government Area of Kaduna State. Multistage sampling technique was used to stratify the major (7) traditional district in Zaria to five (5). Random sampling techniques were used in the second stage to administer thirty (30) questionnaire in each district to make it one hundred and fifty (150) questionnaire. The datum collected was analyzed using simple descriptive statistics and ANOVA. The results revealed that the plant parts (leaves; stem and the root) can be used in treatment and prevention of various diseases such as skin infection; ulcer; malaria; Typhoid; jaundice; measles; and urinary infections. The phytochemical result indicated the presences of tannin (leaf-4.05 mg; Stem-3.75 mg; Root- 2.75 mg), alkaloid (leaf-3.92 mg; Stem-3.80 mg; Root- 1.84 mg), flavanoid (leaf-66.66 mg; Stem-73.63 mg; Root- 79.22 mg), saponin (leaf-16.50 mg; Stem-14.6 mg; Root- 14.3 mg), phytate (leaf-0.14 mg; Stem-0.19 mg; Root- 0.21mg), and oxalate (leaf-0.1 mg; Stem 0.13 mg; Root- 0.15 mg). it was observed that the active ingredients in the different parts of these plants explain their diverse use in the treatment of different diseases.

Keywords: *Acalyphawikesiana*, botanicals, indigenous, phytopharmacological

PHCOG-027:

PHARMACOGNOSTIC STUDIES ON LEAF OF *BORRERIA STACHYDEA* [(DC) HUTCH AND DALZIEL] (RUBIACEAE)

*^{1,2}Anas, A., ²Ambi, A.A., ²Mohammed, Z., ³Saleh, M.I.A., ¹Saifullahi, U., ⁴Jajere, U.M.

¹Department of Pharmacognosy and Herbal Medicine, Bayero University Kano-Nigeria.

²Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria-Nigeria.

³Department of Human Physiology, Ahmadu Bello University Zaria-Nigeria.

⁴Department of Pharmacognosy and Drug Development, Gombe State University, Gombe- Nigeria

*Corresponding author: anasringim2003@gmail.com Phone: +2348030427519

ABSTRACT

Borreria stachydea (Rubiaceae) is an erect, hairy and weedy herb, about 1ft in height with mauve flowers. It is found in Nigeria, Ghana, Sudan, Malaysia, India and several other nations of the world. Despite the fact that this plant has several medicinal properties yet, no standardization parameters has been assessed, for its quality and purity to avoid any form of adulteration. This research was carried out to establish the pharmacognostic standards of the leaf of the plant. The pharmacognostic characters of the leaf of *B. stachydea* were evaluated using standard procedure. The study revealed the size (4.5-5.5), width (0.5-1.5), texture (hairy), taste (astringent). Leaf lamina shape (lanceolate), venation (reticulate), margin (smooth), base (symmetrical) and apex (acute). Microscopical examination has revealed the general organisation and distributions of tissues as: upper epidermis, spongy mesophylls, vascular bundles, parenchyma cells, Uniseriate covering Trichome as well as lower epidermis. Microscopic evaluation of leaf lamina tissue reveals: spiral tracheids/vessels, stomata, calcium oxalate. Quantitative microscopic evaluation: stomatal number (60.5-90.5), stomatal index (9.1-13.0), palisade ratio (3.7-9.0), veinlet termination number (7.5-9.5), vein islet number (8.5-10.5) abaxially and (36.5-45.5), (4.7-9.1), (3.5-4.0), (6.5-10.5) and (5.5-8.5) adaxially respectively. Chemomicroscopical examination: revealed the presence of cellulose, lignin, suberin/cuticle, tannins, starch, protein, calcium oxalate crystals and calcium carbonate. physicochemical parameters: moisture content, total ash, acid insoluble ash, water soluble ash, water extractives, ethanol soluble extractives values were evaluated. The pharmacognostic standards of the plant as revealed by this study could be used as a diagnostic tool for the standardization of this medicinal plant.

Keywords: *Borreria stachydea*, chemo-microscopical examination, physicochemical parameters, standardization

PHCOG-028:

ETHNO-BOTANICAL SURVEY OF MEDICINAL PLANTS USED IN ZARIA, KADUNA STATE

¹*Adelanwa, E.B., ²Adelanwa, M.A., ³Muhammed, Z.O.

^{1,2}Department of Botany, Federal University Lokoja,

³Department of Botany, Ahmadu Bello University, Zaria

*Corresponding author: estherlanwa@yahoo.com, Phone: 08036185814

An ethnomedicinal survey of plants was carried out to document information on medicinal plants used in Zaria, Kaduna State, Nigeria. The aim of study was to investigate medicinal plants used for treatment of various diseases in Zaria. Oral interview and questionnaires were administered to medicinal practitioners, farmers and civil servants. A compiled list of these plants, names, families, parts used, medicinal uses, and mode of administration of the plant extract used in treating several diseases were documented. A total of 50 plant species belonging to 32 families were documented to be used by the indigenes of Zaria. Some of these plants include *Erythrina senegalensis*, *Guiera senegalensis*, *Ficus aurea*, *Newbouldia laevis* and *Senna occidentalis* among others. The parts used include leaves, seeds, roots, flowers, fruit and bark which are mostly prepared by decoction and infusion methods; taken orally. The study showed that plants were used for treatment of typhoid fever, diabetes, urinary tract infections, cold and cough, menstrual pain, and hypertension among others. It also revealed that traditional medicinal practices have a wide acceptability among the people of Zaria.

Keywords: Ailments, ethnobotanical, plants, Zaria

PHCOG-029:

PHARMACOGNOSTIC STUDIES AND ANTIDIABETIC ACTIVITIES OF THE METHANOL EXTRACT OF *LEPTACTINA INVOLUCRATA* HOOK.F (RUBIACEAE)"^{1*}Ezea, S.C., ²Ayogu, O.U., ³Chukwube, V.O., ⁴Akpeko, O., ⁵Onyeka, C.S.^{1,2,3,4,5}Department of Pharmacognosy, University of Nigeria, Nsukka,

*Corresponding author: samson.ezea@unn.edu.ng, Phone: 08034763088

ABSTRACT

Diabetes Mellitus is one of the world's most serious, chronic and complex non-communicable diseases which is characterized by the difficulties in metabolism of carbohydrates. The aim of this work is to establish the Pharmacognostic profile and evaluate the antidiabetic activity of methanol extract of *Leptactina involucrata* Hook. F (Rubiaceae). The pulverized leaves of *L. involucrata*, was extracted with 95% methanol using cold maceration method. The phytochemical screening and microscopic analysis were carried out using standard methods. The antidiabetic property of the methanol extract was evaluated using alloxan induced model and alpha-amylase enzyme model and Glibenclamide and Acarbose were used as standard drugs respectively. Phytochemical analysis showed the presence of terpenoids, alkaloids, saponins and phenolics. Cycle shaped vascular bundle, wavy epidermal cells, trichome bundles of fibre element, and stomata were some diagnostic features revealed in the microscopic analysis. Lignin, starch grains, calcium oxalate were also present. Antidiabetic studies showed that the methanol extract of *L. involucrata* and the standards (Glibenclamide and Acarbose) exhibited significant ($p \leq 0.05$) antidiabetic activities and the maximum effective dose was observed at 200mg/kg (71.07%). The *in vitro* showed highest inhibition at 2mg/ml (68.90%). This study justifies the folkloric use of *L. involucrata* in the treatment of diabetes mellitus.

Keywords: Pharmacognostic, antidiabetic, *Leptactina involucrata*

PHCOG-030:

ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED IN THE MANAGEMENT OF HYPERTENSION BY THE TRADITIONAL MEDICAL PRACTITIONERS GOMBE STATE - NIGERIA

^{*1,2}Yakubu, U.A., ¹Abubakar, A.Z., ¹Shehu, S.^{*1,2}Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria.²Department of Pharmacognosy and Drug Development, Gombe State University, Gombe, Nigeria.*Corresponding author: ualiyakubu@gmail.com Phone: 2348034674918

ABSTRACT

Hypertension constitutes a major public health problem around the world. medicinal plants constitute the fundamental basis of traditional medicine in many African countries and according to the World Health Organization (WHO) about 80 % of the population around the world depends on traditional medicine, mostly herbal remedies, for their primary health care needs. This study aimed to provide information on medicinal plants used for treatment of hypertension in Gombe State. An ethnomedicinal survey of medicinal plants commonly used for the treatment of hypertension was carried out among people of Gombe State, Nigeria. A total of 300 respondents were sampled using snowball techniques and interviewed using a semi-structured questionnaire. A total of 35 medicinal plants were reported with Malvaceae, Fabaceae, and Combretaceae as the most represented. The Relative frequency of citation (RFC) indicated that species such as *Moringa oleifera*, *Anisopus manii*, *Indigofera pulchra*, *Hibiscus sabdarifa*, *Anogeisus leiocarpa*, and *Musa paradisiaca* with RFC values of 0.60, 0.50, 0.35, 0.35, 0.30 and 0.30 respectively were the most used. Fidelity level (FI), Relative popularity level (RPL) and Rank of order of popularity were also calculated. The recipes were found to be the combination of various species of plants or single plant prepared from either dry or fresh forms. The methods of preparations include maceration, infusion, juice or decoction and administration were via oral or topical routes. Medicinal plants sources were wild and some cultivated on the garden. The study establishes a collection of medicinal plants used in the management of hypertension in Gombe State.

Keywords: Hypertension, traditional medical practitioners and ethnobotanical survey.



PHARMACOLOGY (PHCOL)



PHCOL-001:

TOXICITY STUDY ON ALKALOID-RICH FRACTION OF *DETARIUM MICROCARPUM*
(FABACEAE) STEM BARK IN WISTAR RATS*¹Ahmad, M.M., ²Maje, M.I., ²Ya'u, J., ¹Abba, M.U.¹Department of Pharmacology, Bauchi State University, Gadau²Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria*Corresponding author: muslim.ahmad46@gmail.com; Phone: +2348034586142

ABSTRACT

Several studies reported the toxicity profile of the stem bark extract of *Detarium microcarpum* plant. However, no available data on the toxicity profile of the various fractions of its crude extract which gives baseline for isolation of lead compounds. To evaluate the effect of 28-day repeated oral administration of alkaloid-rich fraction of *Detarium microcarpum* stem bark extract on biochemical parameters in Wistar rats. Wistar rats were divided into four groups of five animals each and administered different doses (250, 500 and 1000 mg/kg) of alkaloid-rich fractions via oral route. Body weight changes, relative organ weights (liver, kidney, spleen, heart), serum liver biomarkers (ALT, AST, ALP), liver function parameters (total protein, albumin), kidney function parameters (urea, creatinine, BUN), electrolytes (Na, HCO, K, Cl), and oxidative stress parameters (MDA, CAT, SOD, GPx, LDH, GGT, GHS) were measured. There was no significant ($P>0.05$) increase in body weight, liver and kidney biomarkers, oxidative stress parameters, electrolytes level and hematological parameters in the alkaloid-rich fraction treated rats compared to the normal control. The alkaloid-rich fraction of *Detarium microcarpum* stem bark produces no effect on body and organ weights, biochemical activities and oxidative stress parameters in Wistar rats, suggesting its relative safety.

Keywords: Toxicity, biomarkers, electrolytes, alkaloid, fraction, liver, kidney

PHCOL-002:

THE EFFECTS OF CO-ADMINISTRATION OF DOLUTEGRAVIR AND AQUEOUS LEAF
EXTRACT OF *VERNONIA AMAGDALINA* (FAMILY) ON THE HEMATOLOGICAL
PARAMETERS OF WISTAR RATS*¹Alemika-Bonire, E., ¹Maje I.M., ²Auwal, A.S., ¹Bello-Omenesa, R.¹Department of Pharmacology and Therapeutics, ²Department of Pharmaceutical and Medicinal Chemistry, Faculty of Pharmaceutical Sciences, Ahmadu Bello University, Zaria, Nigeria*Corresponding author: ebunbonire@yahoo.com, Phone: 08127016485

ABSTRACT

Herbal-drug interaction is an important clinical concern in the concomitant consumption with prescription drugs. Dolutegravir (DTG) is an antiretroviral agent, while *Vernonia amygdalina*, (VA) is an herbal medicine widely used as an adjuvant in the management of HIV/AIDS clients, but caution needs to be taken due to its metal content as there is a possibility of additive toxicity when DTG and VA are co-administered. The aim of the study was to examine the effects of co-administration of DTG and aqueous leaf extract of VA on haematological parameters in Wistar rats. Thirty-six (36) Wistar rats were grouped into six (6) of six (6) rats per group. The aqueous leaf extract of VA was administered orally for 28 days at two concentrations of 250 and 500 mg/kg alone and each with DTG (50 mg/kg) and Negative controls (DTG 50mg/kg alone) to group II-VI respectively while group I was served with normal saline. A volume of 5ml of blood sample was collected and analysed for haematological parameters using an Autoanalyzer. The administration of DTG and VA leaf extract showed no significant ($p<0.05$) effects on WBC, Lymph, RBC, HGB, HCT, MCV, MCH, MCHC and MPV compared to control group, except for PLT which showed a significant ($p=0.034$) increase when administered DTG (50 mg/kg) and VA (500 mg/kg) are co-administered. The study revealed that the co-administration of DTG and VA does not affect the haematological parameters of Wistar rats significantly and therefore may be relatively safe.

Keywords: Co-administration, Dolutegravir, *Vernonia amygdalina*, haematological

PHCOL-003:**TOXICOPATHOLOGY ASSOCIATED WITH ACUTE EXPOSURE OF MALE WISTAR RATS TO ETHANOL LEAF EXTRACT OF *DATURA STRAMONIUM* (LINN.)**¹Saleh, A., ¹Hussaini, H.S., ¹Fatih, M.Y., ²Suleiman, M.M., ³Muhammed, N.¹Department of Veterinary Pathology, Ahmadu Bello University, Zaria²Department of Veterinary Pharmacology and Toxicology, ³Department of Clinical Pharmacology and Therapeutics
Ahmadu Bello University, Zaria*Corresponding author: sahmadu@abu.edu.ng Phone:+234 8163982665**ABSTRACT**

Datura stramonium (Solanaceae) commonly known as Jimsonweed, *Zakami* (Hausa), is a perennial herbaceous plant, with major bioactive components as tropane alkaloids. Several animals manifested toxicity symptoms including circulatory and respiratory failure, and even death following its consumption. Eighteen adult Wistar rats with body weight of 200 to 220 g were used for the study. The median lethal dose (LD₅₀) was determined using OECD (2001) guidelines. Group I (control) received distilled water (DW) at 10 mL/kg while group II were administered 4500 mg/kg ethanol leaf extract *D. stramonium* (ELEDs). The LD₅₀ was found to be 4650 mg/kg. Excitement, restlessness, tachycardia, crunching at the corners of cage, pupil's dilation, behavioral sleep, inappetence, decreased body weight, and loss of consciousness were some of the clinical symptoms of toxicity observed. There was significant ($p < 0.05$) decrease in neutrophils in ELEDs-treated group (30.00±2.00%) compared to DW group (41.33±2.33%). There was also significant ($p < 0.05$) increase in lymphocytes (64.33±2.96%), alanine aminotransferase (18.07±0.64 U/L) and aspartate aminotransferase (15.13±2.80 U/L) in ELEDs-treated rats compared to DW group with value of (59.67±3.18%), (15.40±0.93 U/L) and (11.33±0.87 U/L) respectively. Microscopically, vacuolization, perivascular cuffing neuronal degeneration and necrosis of the Purkinje cells were observed in the brain of ELEDs-treated rats. Haemorrhages and congestion were observed on the lungs, mild congestion and centrilobular necrosis on the liver desquamation of epithelial cells on the intestinal mucosa mild cellular infiltration and congestion on the kidney. Acute oral administration of ELEDs cause clinicopathological changes which may be due tropane alkaloids presence in the plant.

Keywords: *Datura stramonium*, LD₅₀, clinical manifestations, perivascular cuffing neuronal degeneration.

PHCOL-004:**EFFECT OF 28-DAY REPEATED ORAL ADMINISTRATION OF FLAVONOID-RICH FRACTION OF *DETARIUM MICROCARPUM* (FABACEAE) STEM BARK ON LIVER AND KIDNEY PARAMETERS AND OTHER BIOMARKERS IN WISTAR RATS**¹Ahmad, M.M., ²Maje, M.I., ²Ya'u, J., ¹Abba, M.U.¹Department of Pharmacology, Bauchi State University Gadau, Nigeria²Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria Nigeria*Corresponding author: muslim.ahmad46@gmail.com; Phone:+2348034586142**ABSTRACT**

Although plants are the major sources of drug, many plants were found to be very toxic when administered systemically. Ethnobotanical surveys reported how reputable *Detarium microcarpum* is in treating many diseases African countries. The aim was to evaluate the effect of 28-day repeated oral administration of flavonoid-rich fraction of *D. microcarpum* stem bark extract on biochemical parameters in Wistar rats. Wistar rats were divided into four groups of five animals each and administered different doses (250, 500 and 1000 mg/kg) of flavonoid-rich fraction via oral route to group II, III and IV respectively while group I received normal saline. Body and relative organ weight, liver biomarkers, biochemical (liver and kidney function) parameters, electrolytes (K, Na, HCO, Cl), and oxidative stress (SOD, MDA, GSH etc.) markers were measured. There was no significant ($P > 0.05$) increase in body and relative organ weight, liver and kidney function biomarkers (except in BUN at the dose of 1000 mg/kg), oxidative stress markers, electrolytes level and hematological (WBC, RBC, Platelets etc.) parameters in the alkaloid-rich fraction treated rats compared to the normal saline treated group. The flavonoid-rich fraction of *D. microcarpum* stem bark produces no alteration on biochemical and hematological

parameters except on oxidative stress markers at higher doses in Wistar rats which, indicated its relative safety.

Keywords: Toxicity, flavonoid, liver, kidney

PHCOL-005:

ANTINOCICEPTIVE AND ANTIINFLAMMATORY POTENTIALS OF *JATROPHA TANJORENSIS* METHANOLIC LEAF EXTRACT

*Ayagwa, A.T., Vantsawa, P.A., Abdulsalami, M.S.

¹Nigerian Defence Academy, Kaduna,

*Corresponding author: ayagwaandrew1@gmail.com, Phone: 08028088723

ABSTRACT

Nociception caused by intense, damaging stimuli is primarily protective in nature and acts as sensorial modality to indicate the presence of tissues injury. Pain sensation during noxious stimulus activates the receptors (nociceptors) in the primary afferent fibers leading to inflammation, characterized by redness, swelling, heat or loss of tissue function. The leading mediators of inflammation and pain are the enzymes, cyclooxygenases (COX-1 and COX-2) or prostaglandin endoperoxide synthases. *Jatropha tanjorensis* has been exploited over the years for food and as biopharmaceuticals to remedy diseases in traditional and herbal medicine. This research aimed at evaluation of antinociceptive and Antiinflammatory properties of Methanolic leaf extract of *Jatropha tanjorensis*. Fresh leaves of *Jatropha tanjorensis* were selectively collected and subjected to methanolic extraction. Swiss mice weighing (19-28)g were divided into five groups (n=3) and used for paw edema, acetic acid, formalin and pharmacological pathway test. The extract was administered at 100, 200 and 400 mg/kgb.w. Acetic-acid, formalin and paw edema test indicated significant dose-related decrease in the number of writhes, itching and size of paw. The pharmacological pathway showed that there was no much involvement of ATP-sensitive K⁺ channel and there was no involvement of opioid receptors in the nociceptive action of the extract. The effects of the extract in inhibiting nociception at both phases of formalin test means the extract has both central and peripheral mechanism of action. The inflammation and nociception inhibition was mediated by the presence of alkaloids and flavonoids.

Keywords: *Jatropha tanjorensis*, antinociception, pharmacological, antiinflammation

PHCOL-006:

EFFECT OF AQUEOUS CRUDE EXTRACT OF *CYPERUS ESCULENTUS* (CYPERACEAE) ON IMPORTANT BIOCHEMICAL INDICES INVOLVED IN PENILE ERECTION IN MALE WISTAR RATS

*Osibemhe, M., Ebri, U.U.

Department of Biochemistry and Molecular Biotechnology, Federal University, Dutsin-Ma

*Corresponding author: mosibemhe@fudutsinma.edu.ng, Phone: 08063260886

ABSTRACT

Erectile dysfunction (ED) is the consistent failure to reach and sustain an erection adequate to execute sexual responsibility or intercourse. Some drugs used in erectile dysfunction management work by potentiating erectile response stimulated by nitric oxide (NO) or lower risk factors of ED. This study investigated the effect of aqueous crude extract of tiger nut on some important biochemical indices involved in penile erection. Twenty (20) adult male rats were grouped into four (4) groups. Animals were treated for fourteen (14) days with the extract. NO, some sex hormones, fasting blood glucose, lipid profile, ALT, AST and hematological parameters were assayed. Body and organ weights were also monitored weekly. Body weight, kidney and testes weights, Sex hormones, hematological indices and total cholesterol were modulated in a non-dose dependent manner. Significant increase was observed in NO levels in the testes. Other assayed lipid panels and liver enzyme activities were not significantly changed. These findings indicated that the plant extract modulated the assayed parameters in non-dose dependent manners which were still within the threshold. Hence, *C. esculentus* aqueous crude extract may be considered a good candidate to boost erection.

Keywords: nitric oxide, testosterone, Wistar rats

PHCOL-007:**ADENIUM OBESUM ETHANOL STEM-BARK EXTRACT AND ETHYL ACETATE FRACTIONS AMELIORATED OXIDATIVE STRESS ASSOCIATED WITH BEHAVIORAL CHANGES IN VINCRIStINE-INDUCED PERIPHERAL NEUROPATHIC RATS**

Lawan, Z., Babandi, A., Idi, A., *Ibrahim, A.

Department of Biochemistry, Bayero University, Kano.

*Corresponding author: aibrahim.bch@buk.edu.ng; Phone: 07062533871.**ABSTRACT**

The mammalian nerves are known to be more susceptible to oxidative stress because of weak cellular antioxidant defenses or loss in the antioxidant defense enzymes which is akin to vincristine drug damage. *Adenium obesum* is considered as a medicinal plant for the treatment of various kinds of diseases. This study was aimed to investigate the association of behavioral changes and oxidative stress following administration of *Adenium obesum* stem bark extract and fractions to vincristine-induced peripheral neuropathic rats. Vincristine sulphate (0.1 mg/kg *i.p*) was used to induce peripheral neuropathy in rats (200-250 g). The rats were grouped into seven: normal control, vincristine control, pregabalin, *A. obesum* ethanol extract (300 mg/kg) and *A. obesum* ethyl acetate fractions (100, 200 and 300 mg/kg) treated groups. Behavioral tests were done on day 0 before vincristine induction, and subsequently on days 1, 5 and 10th after vincristine induction. Rats were sacrificed on day 31, the blood and sciatic nerve were collected for the biochemical assessment. Behavioral changes were observed on day 10 after vincristine induction. Ethyl acetate (300 mg/kg bw) fraction showed significant ($p < 0.05$) increase in level of superoxide dismutase (SOD), catalase (CAT); decrease was found in the level of malondialdehyde (MDA); and there were improved changes in histopathology of the nerve. A significantly ($p < 0.05$) positive correlation was found between the hot tail immersion test with SOD (44.89%) and CAT (40.96%). *Adenium obesum* stem bark ethyl acetate fraction was found to ameliorate oxidative stress associated with behavioral changes in vincristine-induced peripheral neuropathic rats.

Keywords: Mental health, antioxidants, medicinal plants, drug-induced neuropathy.

PHCOL-008:**ANTI-ULCER PROPERTIES OF THE OIL EXTRACTED FROM THE SEEDS OF *FICUS RELIGIOSA* L. (MORACEAE)**

*Shehu, S., Shehu, U.F., Oyedeji, D.E.

Department of Pharmacognosy and Drug Development, A.B.U., Zaria, Nigeria

*Corresponding author: salisshe18@gmail.com Phone +2348134924454;**ABSTRACT**

Ficus religiosa (Moraceae) is a large evergreen tree, native to India. However, it is found in some tropical countries including Nigeria. Among its uses in traditional medicine, the seed from the plant has been used to treat gastric and duodenal ulcers. The current study tried to evaluate the anti-ulcer property of the oil obtained from the seed of the plant. The extraction of the oil and phytochemical screening was achieved following standard methods. Evaluation for acute oral toxicity was performed according to OECD guidelines, while the anti-ulcer activity screening was conducted using ethanol and aspirin-induced ulcer models in rats. Acute toxicity test showed an oral LD₅₀ greater than 5000 mg/kg in rats. The oil extract at doses of 250 and 500 mg/kg exhibited the most significant ($p < 0.0001$) protection against ethanol-induced ulcer with mean ulcer indices of 3.75 ± 1.44 and 2.0 ± 1.08 respectively compared with control (22.5 ± 0.64). Comparably, the standard drug, omeprazole, produced lower effect with significant ($p < 0.001$) protection and mean ulcer index of 6.67 ± 3.53 . Furthermore, the oil (125, 250, and 500 mg/kg) dose-dependently conferred 79.7, 82.8 and 92.2% protection against aspirin-induced ulcer respectively. The standard drug produced 87.5% against it. The oil was found to contain triterpenes, which are likely to be responsible for its anti-ulcer activity and this justifies the folkloric use.

Key words: *Ficus religiosa*, phytochemical, anti-ulcer, toxicity.

PHCOL-009:**EVALUATION OF ANTIDEPRESSANT ACTIVITY OF METHANOL LEAF EXTRACT OF *LEPTADENIA HASTATA* ON SOME PHARMACOLOGICAL TARGETS AND BIOMARKERS FOR DEPRESSION IN MICE**¹Sani, I.H., ²Umar, M.A., ³Abubakar, A.R., ³Yaro, A.H., ³Malami, S.¹Department of Clinical Pharmacology and Therapeutics, ²Departments of Human Physiology, Faculty of Basic Clinical Sciences, College of Health Sciences, Yusuf Maitama Sule University, Kano, Nigeria.³Department of Pharmacology and Therapeutics, Faculty of Pharmaceutical Sciences, Bayero University Kano, Nigeria.* Corresponding author: harunaibrahim81@yahoo.com; ihsani@yumsuk.edu.ng**ABSTRACT**

Depression has affected a high proportion of the world's population and people of different ages, reducing their performance at work and social relationships, causing emotional disorders to many families. *Leptadenia hastata* is widely used for its therapeutic benefits including the treatment of depression. The present study aimed to evaluate the antidepressant activity of methanol leaf extract of *L. hastata* on some pharmacological targets and biomarkers for depression in mice. Phytochemical screening and median lethal dose (LD₅₀) studies were done using standard procedures. Antidepressant activity was evaluated using chronic unpredictable mild stress (CUMS)-induced depression involving the baseline behavioral changes in the sucrose preference test (SPT), open field test, and tail suspension test (TST). The brain-derived neurotrophic factor (BDNF) concentrations and serum cortisol were assessed using enzyme-linked immunosorbent assay (ELISA). Phytochemical screening revealed the presence of flavonoids, alkaloid, steroids, tannins and saponins. The LD₅₀ was >5000 mg/kg. The extract at doses of 250-1000 mg/Kg significantly ($p < 0.01$) decreased CUMS-induced depression in a dose-dependent manner. It increased sucrose consumption from week two (4.29±0.52 ml) to week five (9.71±0.68 ml), also significantly ($p < 0.01$) decreased the duration of immobility (190.00±4.55 sec) to (158.00±3.83 sec) at within the same period in TST. *L. hastata* significantly ($p < 0.01$) and dose-dependently increased the levels of BDNF (204.74±22.97 pg/ml) and decreased the levels of plasma cortisol (0.98±0.06 ng/ml). This demonstrated that *L. hastata* ameliorates CUMS-induced depressive-like behaviours, and its effect is possibly mediated via the neuroendocrine (cortisol) and neurotrophic BDNF. **Keywords:** Herbal, antidepressant, depression, *Leptadenia hastata*

PHCOL-010:**SORGHUM BICOLOR LEAF SHEATHS: A PHYTOCHEMICAL APPROACH TO MITIGATE CARDIOVASCULAR DISEASES**

Akpebe, A.N.

Anmak Health Solutions Limited, Port Harcourt; Anmak Natural Medicine Academy.

Corresponding author: aakpebe@gmail.com, Phone: 08037552706**ABSTRACT:**

Cardiovascular diseases (CVDs) are a leading cause of global mortality, necessitating innovative prevention and treatment strategies. *Sorghum bicolor* leaves sheaths, a nutrient-rich leaves, has emerged as a potential solution. This review highlights the cardiovascular benefits of *Sorghum bicolor* leave sheaths, attributed to its unique bioactive compounds, including phenolic acids, flavonoids, and anthocyanins. The antioxidant, anti-inflammatory, and anti-atherogenic properties of *Sorghum bicolor* leave sheaths have been shown to improve lipid profiles and reduce triglycerides, enhance endothelial function and vasodilation, inhibit platelet aggregation and thrombosis, modulate blood pressure and cardiovascular risk factors. The potential mechanisms underlying these effects are discussed, including the modulation of oxidative stress, inflammation, and the gut microbiome. Furthermore, the versatility of *Sorghum bicolor* as a food ingredient and dietary supplement makes it an attractive candidate for preventive and therapeutic applications. This review underscores the potential of *Sorghum bicolor* as a both phytochemical and nutraceutical solutions to mitigate cardiovascular diseases, warranting further research and clinical translation.

Keywords: Cardiovascular diseases, *Sorghum bicolor*, phenolic compounds

PHCOL-011:
ANTI-DEPRESSANT ACTIVITIES OF METHANOL EXTRACT OF *MORINGA OLEIFERA*
(LAM) SEED IN MICE

*¹Abbas, M.Y., ¹Ajiboye, S.J., ²Yakubu, M.I., ¹Bello, R.O., ¹Hassan, F.I.

¹Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria

²Department of Pharmacology and Toxicology, Kaduna State University, Kaduna

*Corresponding author: dinnabbas@gmail.com, Phone: +2348065373636

ABSTRACT

Depression is a common mental disorder characterized by a depressive mood or loss of pleasure in activities for long periods of time. The numerous barriers to receiving appropriate care and high percentage of patients not responding to orthodox medicines has led to the use of alternative medicines in the management depression. Currently, herbs are used in the management of acute and chronic mental conditions including depression, and they form an essential component of our health management owing to their accessibility, availability and belief in their safety. This study aims to evaluate the antidepressant activity of the methanol extract of *Moringa oleifera* seed in mice. Phytochemical screening was conducted; acute toxicity and antidepressant studies were carried out using mice. The antidepressant activity was evaluated using tail suspension and forced swim tests at doses of 250, 500 and 1,000 mg/kg body weight, distilled water (10 mL/kg) and fluoxetine (20 mg/kg) were used as negative and positive control respectively. The result of the study showed the presence of alkaloid, tannin, saponin, flavonoid, steroid, triterpene, and carbohydrate. The LD₅₀ was estimated to be > 5000 mg/kg. The extract showed statistically significant ($p < 0.05$) reduction in the immobility time of the mice treated with extract at 250 and 500 mg/kg when compared with the negative control, for both tail suspension and forced swim tests. Hence, validating the ethno-medicinal claim of the use of *Moringa oleifera* seed in depression management.

Keywords: Depression, phytoconstituents, acute toxicity, *Moringa oleifera* seed

PHCOL-012:
PRELIMINARY PHYTOCHEMICAL SCREENING, TOXICITY AND
ANTI-INFLAMMATORY STUDIES OF METHANOL LEAF EXTRACT OF *ANEILEMA*
BIFLORUM

*¹Isezuo, O.H., ¹Danmalam, H.U., ¹Ibrahim, H., ²Shehu, A., ¹Jimoh, O.V.

¹Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria

²Department of Pharmacology and therapeutics, Ahmadu Bello University, Zaria

*Corresponding author: helenisezuo@gmail.com, Phone: 08167595574

ABSTRACT

Inflammation is a dynamic process that is elicited in response to mechanical injuries, burns and other harmful stimuli. *Aneilema biflorum* leaf is used traditionally in the Northern Nigeria for the treatment of inflammation, but no anti-inflammatory studies have been conducted in this plant. The present work was performed to screen phytochemical, toxicity and anti-inflammatory activity of methanol leaf extract of *A. biflorum* leaf (Family: Commelinaceae). *A. biflorum* leaf was prepared and extracted with methanol, the extract was then subjected to preliminary phytochemical investigations, toxicity and anti-inflammatory studies using carrageenan-induced paw edema and cotton pellet granuloma models at doses (250, 500 and 1000 mg/kg) via oral administration. The preliminary phytochemical screening of *A. biflorum* leaf extract revealed the presence of carbohydrates, saponins, cardiac glycosides, flavonoids, tannins, alkaloids and steroids/triterpenes, acute toxicity was found to be above 5000 mg/kg. Both anti-inflammatory models at all doses significantly ($p < 0.005$) inhibited inflammation. The standard drug (Piroxicam 10 mg/kg and Acetyl Salicylic Acid 150mg/kg) also showed significant anti-inflammatory activity in all the two models. The plant is relatively safe and the extract possess both acute and chronic anti-inflammatory activity in Wistar rats which may be due to the presence of the secondary metabolites present such as steroids/triterpene, alkaloids, flavonoids and saponins.

Keywords: Phytochemicals, anti-inflammatory, carrageenan, *Aneilema biflorum*, cotton pellet

PHCOL-013:**POTENTIAL OF BRASSICA OLERACEA VAR. CAPITATA F. RUBRA TO PROTECT AGAINST DOLUTEGRAVIR-INDUCED KIDNEY INJURY IN WISTAR ALBINO RATS: A PRELIMINARY STUDY**¹Amagon, K., ²Amagon, L., ³Maimako, B., ⁴Magani, E.W.

Department of Pharmacology and Toxicology, University of Jos, Jos, Nigeria

*Corresponding author: amagonk@unijos.edu.ng, Phone: +2348095550056

ABSTRACT

The kidneys are prone to damage from highly active antiretroviral therapy (HAART), including dolutegravir, a key drug for HIV/AIDS. This study aimed at exploring the nephroprotective potential of *Brassica oleracea* (red cabbage) extract against dolutegravir-induced kidney injury. Forty-two rats, divided into seven groups, were treated for 30 days: normal saline, dolutegravir (10 mg/kg), dolutegravir (10 mg/kg)+Silymarin (75 mg/kg), extract alone (1000 mg/kg), dolutegravir+extract at 250, 500, and 1000 mg/kg respectively. Rats were euthanized, and blood analysed for urea, creatinine, WBC, RBC, HB, HCT, PCV. Kidney samples were collected and subjected to histopathological analysis. Phytochemical analysis was also conducted. Treatment groups showed significant improvements in hemoglobin, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration, indicating potential benefits in RBC quality. Urea and creatinine levels decreased insignificantly, suggesting inconclusive renal protection. Alkaloid and flavonoid were detected in the plant sample. Kidney architecture showed protection in the presence of *Brassica oleracea*. The treatment showed improved red blood cell metrics and potential but inconclusive renal protection. The extract's high content of bioactive compounds may offer additional therapeutic benefits. Further research is needed to confirm these findings and evaluate the treatment's efficacy and safety.

Keywords: Brassica, Dolutegravir, toxicity, renoprotection**PHCOL-014:****BIOASSAY- GUIDED AND ANTIDIARRHOEAL ACTIVITY OF AQUEOUS RESIDUAL FRACTION LEAF EXTRACT OF *IPOMEA BATATAS* L.**¹Abdullahi, N., ²Adamu, M.A., ³Shehu, A., ⁴Musa, K.A.

Department of Biochemistry, Bayero University, Kano, Kano, Nigeria

*Corresponding author: nabdullahi.bch@buk.edu.ng, Phone: 09079461475

ABSTRACT

Diarrhea, marked by increased stool water content, volume, and frequency, is a significant cause of morbidity and mortality especially in children. It can be linked to conditions like irritable bowel syndrome and gastroenteritis. *Ipomoea batatas* (sweet potatoes) is traditionally used for its potential antidiarrheal effects, scientific studies confirming its efficacy and establishing recommended doses are still needed to support its application. The aim was to investigate the antidiarrheal potential of extracts from *Ipomoea batatas* leaves. *Ipomoea batatas* leaves were collected, authenticated, and prepared by washing, air-drying, and blending into powder for extraction using methanol and n-hexane. The antidiarrheal study involved 36 Wistar rats, which were divided into groups to test various doses of the extracts and controls, with outcomes measured through castor oil-induced diarrhea and enteropooling models. Bioactive compounds in the most effective fraction were identified using GC-MS and LC-MS. One-way ANOVA and Tukey's post hoc test were used for data analysis, considering results significant at $p < 0.05$. Extracts from *Ipomoea batatas* leaves demonstrated significant antidiarrheal activity in Wistar rats, evidenced by reduced stool frequency, fecal weight, and water content, alongside inhibition of intestinal fluid accumulation and modulation of Na⁺-K⁺ ATPase activity. Phytochemical analysis revealed the presence of various secondary metabolites across different column fractions, and GC-MS/LC-MS identified bioactive compounds such as catechol, methyl gallate, and n-Hexadecanoic acid, known for their potential in inhibiting intestinal motility and electrolyte absorption. *Ipomoea batatas* aqueous residual column fraction exhibited potent antidiarrheal activity, possibly attributed to bioactive compounds.

Keywords: Phytochemicals, antidiarrhoea, castoroil, *Ipomoea-batatas*

PHCOL-015:**EFFECTS OF DOLUTEGRAVIR ON GEOTACTIC BEHAVIOR IN DROSOPHILA MELANOGASTER: THE PROTECTIVE EFFECTS OF BRASSICA OLERACEA**^{1*}Amagon, L., ²Iheanaeto, S.C., ³Amagon, K.I., ⁴Omale, S., ⁵Wanche, E.M., ⁶Falang, K.D., ⁷Bukar, B.B.

Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, University of Jos

*Corresponding author: leritshimwa@yahoo.co.uk, Phone: 08033713242

ABSTRACT

Dolutegravir has been seen to cause adverse events that may include movement disorders and *Brassica oleracea* is reported to have antioxidant, hypoglycemic, anticancer and hypocholesterolemic effects. The aim was to determine the role of *Brassica oleracea* in Dolutegravir-induced effects on geotactic behavior in *Drosophila melanogaster*. *D. melanogaster*, 3-5 days old, were exposed to different concentrations of Dolutegravir (0.5 to 4 mg/5 g diet) and *B. oleracea* extract (7.5 – 1000 mg/5 g diet) for 7 days to determine the LC₅₀, then 5-day exposure to dolutegravir and extract for geotactic assays and acetylcholinesterase activity. A 14-day fly survival was also determined. There was a significant decrease in the survival rate of DTG-treated *Drosophila melanogaster* and an observed increase in groups treated with the extract. A significant decrease in the geotactic behaviour of DTG-treated *D. melanogaster* was observed. *B. oleracea* offered protection when pre-administered the extract. *Brassica oleracea* offered protective effects against dolutegravir-induced changes in geotactic behaviour in *Drosophila melanogaster*.

Keywords: *Drosophila*, geotactic, *Brassica oleracea***PHCOL-016:****TOXICITY STUDIES ON *ANNONA SENEGALENSIS* (ROOT BARK), *PILIOSTIGMA THORNINGII* (STEM BARK) AND *PARINARI CURATELIFOLIA* LEAF USING ALBINO WISTAR RATS MODEL**^{1*}Adah, C.A., ²Tarnande, C.I., ³Agbo, D.A., ⁴Agbo, E.O., ⁵Kukwa, R.E.

Department of Chemistry, Benue State University, Makurdi, Nigeria

*Corresponding author: christieadah5@gmail.com, Phone: 07069037034

ABSTRACT

In many parts of Nigeria, especially rural areas, access to conventional medicine may be limited. Herbal remedies are often more accessible and affordable, making them the primary healthcare option for a large portion of the population. *Annona senegalensis*, *Piliostigma thorningii* and *Parinari curatelifolia* are traditionally used for medicinal purposes across Nigeria, raising concerns about their potential toxic effects. This study aims to determine the toxicity of aqueous extract of root bark of *Annona senegalensis*, stem bark of *Piliostigma thorningii* and leaves of *Parinari curatelifolia* using albino wistar rats model. The safety profile of the aqueous plant extracts was determined using the Organization of Economic Corporation and Development (OECD) method (Test Guideline 425) through acute oral toxicity testing using albino wistar rat models and *in vitro* assays. The LD₅₀ of the plants were determined to be above 5000 mg/kg body weight. The root bark of *Annona senegalensis*, stem bark of *Piliostigma thorningii* and leaf of *Parinari curatelifolia* are relatively safe for consumption.

Keywords: Toxicity, *Annona senegalensis*, *Piliostigma thorningii*, *Parinari curatelifolia*

PHCOL-017:**PH-DEPENDENT LOADING OF LUTEOLIN INTO CYCLODEXTRIN-BASED MOFS; A STRATEGIC APPROACH TO IMPROVE STABILITY AND ANTI-INFLAMMATORY ACTIVITY****^{1*}Bello MG**¹Department of Pharmaceutics and Industrial Pharmacy, Kaduna State University, Kaduna, Nigeria

*Corresponding author: mgbello97@gmail.com, Phone: +2348160775787

ABSTRACT

Luteolin, a flavonoid with antioxidant and anti-inflammatory properties, has limited clinical application due to its instability, poor solubility, and low bioavailability. Cyclodextrin metal-organic frameworks (CD-MOFs) are a potential solution, offering high porosity and tunable pore sizes. By encapsulating luteolin within their structure, CD-MOFs enhance its solubility, and bioavailability, while protecting luteolin from degradation. Demonstrate the efficiency of CD-MOFs as a drug delivery carrier. CD-MOF and NS-MOF were synthesized and characterized using SEM, DLS, and BET. The successful incorporation of luteolin (LT) was confirmed through FTIR, TGA, DSC, PXRD, and molecular docking simulations. Anti-inflammatory enhancements were assessed using Elisa and NO assay kits, followed by in vivo analysis using paw edema model. This study showcases cyclodextrin-based MOFs as effective encapsulators of luteolin, overcoming its limitations. The optimized LT/CD-MOF and LT/NS-MOF formulations demonstrated enhanced anti-inflammatory in vivo. Notably, bioavailability increased 6-fold, and anti-inflammatory activity surged 4.86 and 5.4-fold in the rat hind paw edema model. Our findings demonstrate that LT-loaded MOFs significantly enhanced the stability, cellular permeation, antioxidant, and anti-inflammatory properties of LT compared to its pure form.

Keywords: MOFs, luteolin, stability, inflammation**PHCOL-018:****ANTI-INFLAMMATORY AND ANTIPYRETIC ACTIVITIES OF METHANOL LEAF EXTRACT OF *CRYPTOLEPIS OBLONGIFOLIA* (APOCYNACEAE) IN WISTAR RATS****^{1*}Abdussalam, U., ²Maje, I.M., ³Anafi, S.B., ⁴Jatau, I.D.**¹Department of Pharmacology and Therapeutics, Bayero University, Kano, Kano^{2,3} Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria.⁴Department of Veterinary Parasitology and Entomology, Ahmadu Bello University, Zaria, Kaduna

*Corresponding author: usabdussalam.pha@buk.edu.ng, Phone: 08066930736

ABSTRACT

Inflammation and fever are integral part of body's response to infections. *Cryptolepis oblongifolia* has been used traditionally to treat fever and inflammation without scientific backing. The aim was to investigate the anti-inflammatory and antipyretic activities of methanol leaf extract of *C. oblongifolia* (MLECO) in rats. Ant-inflammatory activity of MLECO was evaluated using carrageenan-induced paw edema. Thirty rats were divided into five groups of 6 rats. Inflammation was induced into rat's hind paw using 0.1 ml of 1% carrageenan. Rats in group I received distilled water 1 ml/kg, groups II-IV received 93.75, 187.5 and 375 mg/kg of MLECO and group V received diclofenac 10 mg/kg orally, 60 min before carrageenan administration. The paw edema was measured hourly for 5 h using Vernier caliper. The baseline rectal temperature the rats was measured and fever was induced by subcutaneous injection of 10 ml/kg Brewers' yeast. Thirty pyrexic rats were grouped into five groups of 6 rats, grouped I received 1 ml/kg distilled water, groups II-IV received 93.75, 187.5 and 375 mg/kg of MLECO and group V received paracetamol 10mg/kg. The rectal temperature was recorded hourly for 4 h. MLECO at doses of 93.75, 187.5 and 375 mg/kg showed significant ($p < 0.001$) anti-inflammatory activity compared to distilled water group. The extract showed significant ($P < 0.001$) antipyretic activity at the fourth hour compared to the temperature at the first, second and third hours. The MLECO possessed anti-inflammatory and antipyretic activities in rats at the doses tested.

Keywords: *Cryptolepis, oblongifolia*, inflammation, fever

PHCOL-019:**PHYTOCHEMICAL ACUTE TOXICITY AND ANTI-INFLAMMATORY STUDIES OF ETHANOL EXTRACT OF *PAVETTA OWARIENSIS* P. BEAUV IN RATS**¹Ibrahim, B.A., ¹Shehu, S., ¹Abdullahi, A.M., ¹Hadi, Y.M., ²Muhammad, M.M.¹Department of Pharmacognosy and Drug Development, Kaduna State University, Kaduna, Nigeria²Department of Biological Sciences, Usmanu Danfodiyo University, Sokoto-Nigeria* Corresponding author: ibrahimbaisha@gmail.com Phone: +2348066967338,**ABSTRACT**

Pavetta owariensis (Rubiaceae) locally called “Namijim Gadau-Gadau” in Hausa is a shrub or small tree up to 15 m tall, it has been used traditionally for the treatment of inflammation, pain, rheumatism, jaundice ulcers among others. It has been reported to have in-vitro antiviral and antibacterial activities. This study aimed to establish its phytochemical constituents, safety profile, as well as its anti-inflammation potentials. The powdered leaf was macerated using 70% ethanol. The qualitative and quantitative phytochemical properties of the extract were evaluated using standard methods. The result revealed the presence of carbohydrate, saponins, cardiac glycosides, flavonoids, tannins, alkaloids and steroids/triterpenes. The quantitative determination showed total alkaloid 17.20±0.02 mg AE/g, total flavonoid 8.84±0.64 mg QE/g, total tannins 4.12±0.01 mg GAE/g, total saponins 7.20±0.003 mg DE/g, total phenolic 67.02±0.24 mg GAE/g. The median lethal dose (LD₅₀) of the extract was found to be greater than 5,000 mg/kg orally in rats. The administration of 70% ethanol extract of *P. owariensis* significantly inhibited the carrageenan-induced inflammation in the 1st - 5th h. The result of anti-inflammatory study showed that the extract at 250, 500, and 1000 mg/kg body weight showed significant (p<0.05), anti-inflammatory potential in comparison to the standard drug ibuprofen. The anti-inflammatory activity of the extract is dose-dependent with 1000 mg/kg giving (74%), 500 mg/kg (58%) and 250 mg/kg has the least percentage inhibition with (54%) while the standard drug Ibuprofen gave (75%). The study provides some justification to the traditional use of the plant in treatment of inflammation.

Keywords: *Pavetta owariensis*, phytochemicals, toxicity, inflammation**PHCOL-020:****NEPHROTOXIC EFFECT ON THE METHANOL LEAF EXTRACT OF *SENNA SIAMEA* LAM. (FABACEAE) ON PHENYL HYDRAZINE INDUCED ANAEMIA IN MALE WISTAR RAT**¹Abdullahi, A.M., ²Ambi, A.A., ²Katsayal, U.A., ¹Oduma, S.E., ¹Hadi, Y.M., ¹Ahmed, M.A.¹Department of Pharmacognosy and Drug Development, Kaduna State University, Kaduna.²Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria.*Corresponding author: abdulazeez.abdullahi@kasu.edu.ng Phone: +2347032354860**ABSTRACT**

Senna siamea Lam., (Fabaceae; Caesalpiniaceae). It is a tropical plant of Southeast Asia that is valued for its health and economic benefits. The research evaluated the effect of the methanol leaf extract on kidney function test in phenyl hydrazine induced anaemic rats. Thirty Wistar rats were randomly grouped into six group of five rats each. Group 1 received distilled water, while Groups 2, 3, and 4 were induced with anaemia using the phenyl hydrazine and received orally 200, 400, and 600 mg/kg/ body weight of the extract. Group 5 was induced with anaemia and received 75 mg/kg/body weight ferrous sulfate as a standard drug. Group 6 serves as the negative control. The animals were sacrificed two weeks after oral administration of the methanol extract, and both blood and organ samples were collected. There was a significant decrease in packed cell volume (PCV), and Haemoglobin (Hb) concentration in treated groups. Biochemical analysis showed no significant difference in (p <0.05) in the level of creatinine, urea, sodium, and potassium when compared to anaemic control group. Histological studies of the kidney for the normal controls showed normal tubules (T) and glomerulus (G); the fersolate group shows slight tubular distortion. At 200, 400, and 600 mg/kg, the liver shows slight tubular adhesion, and the anaemic

control group showed normal. The study reveals that prolonged administration of high concentrations of the extract could be relatively toxic to kidneys.

Keywords: Methanol, anaemia, kidney, creatinine.

PHCOL-021:

EVALUATION OF ANTIHYPERLIPIDAEMIC PROPERTY OF METHANOL EXTRACT OF THE LEAF OF *CROSSOPTERYX FEBRIFUGA* (AFZEL. EX G. DON) BENTH

¹Isah, A.O., ²Idu, M., ³Amaechina, F.C.

¹Department of Botany, Federal University Lokoja, Kogi State, Nigeria

²Department of Plant Biology and Biotechnology, University of Benin, Benin City, Edo State, Nigeria

³Department of Pharmacology and Toxicology, University of Benin, Benin City, Edo State, Nigeria

Corresponding author: isah.audu@fulokoja.edu.ng Phone: 08065653248

ABSTRACT

The role of hyperlipidaemia in predisposing individuals to hypertension and some other cardiovascular diseases cannot be overemphasized. Some medicinal plants have been identified as local curative agents for alleviating hyperlipidaemia. Among these, is *Crossopteryx febrifuga* fruit. This study was carried out to evaluate the ability of the methanol extract of *C. febrifuga* leaf in treating hyperlipidaemia. Hypercholesterolemia was induced using cholesterol inducing agent. Experimental rats were administered daily with cholesterol at 0.2 ml for 21 days in order to induce hyperlipidaemia. After 21 days, the rats were then treated for two weeks after which blood samples were collected from overnight fasted rats for lipid analysis. Histopathological examination was done on liver, heart and aorta. The extract at all doses proved not to have reducing effect on cholesterol and TAG level. The extract at every dose administered increased LDL but decreased HDL. The liver of *C. febrifuga* methanol extract treated rat revealed highly improved central vein and hepatocytes. The extract treated rat revealed heart with normal myocardial fibres. The extract also revealed aorta with architecture composing of bundle of tunica media, loose elastic lamina and less lymphocytic infiltration. The methanol extract of *C. febrifuga* leaf showed no anti-lipidaemic effect on lipid indices especially LDL cholesterol which normally support hyperlipidaemia

Keywords: Hyperlipidaemia, *Crossopteryx febrifuga*, methanol extract, medicinal plants

PHCOL-022:

MOLECULAR EVALUATION OF B-ISLET CELL REJUVENATION IN DIABETIC RATS TREATED WITH *MIRABILIS JALAPA* ROOT EXTRACTS

^{1*}Suleiman, M.J., ²Sadiq, M. E., ³Yankuzo, M.H., Musa, ⁴M.O., ⁵Umar, U.Z., ⁶Usman, B., ⁷Ismail, S., ⁸Imam, M.U.

*^{1, 2, 7}Department of Biochemistry and Molecular Biology Usman Danfodiyo University, Sokoto,

^{3, 8}Department of Medical Biochemistry, Faculty of Basic Medical Sciences,

⁴Department of Histopathology School of Medical Laboratory Science, Usman Danfodiyo University Sokoto,

*Corresponding author: abunajeeb06@gmail.com Phone: 07063113941

ABSTRACT

Metabolic acidosis, ketosis, dyslipidemia, and oxidative stress are significant issues in diabetes management. The aim of study was to assess the efficacy of *Mirabilis jalapa* root extracts in restoring glucose homeostasis in alloxan-induced hyperglycemic Wistar albino rats. Hyperglycemic rats were administered *Mirabilis jalapa* extracts at doses of 200 and 400 mg/kg daily after a 6-hour fasting period. Parameters including postprandial glucose levels and body weight were monitored throughout the 28-day treatment period. Following this, biochemical assessments of serum glucose, lipid profile, and oxidative stress markers were performed. Gene expression and histochemical analyses of pancreas tissues were also conducted. Both dosages of *Mirabilis jalapa* extracts led to significant increases in body weight and reductions in postprandial glucose levels compared to the untreated controls ($p < 0.05$). Lipid profile indices, elevated in the untreated group, were normalized with treatment ($p < 0.05$). Additionally, antioxidant enzyme activities increased, and malondialdehyde levels decreased in treated rats. Serum insulin levels also significantly rose ($p < 0.05$). Histochemical analysis showed an increased cell population within islet nests in the treated groups. Enhanced expression and proliferation of islet-related

genes were observed in extract-treated rats. *Mirabilis jalapa* extract effectively restores glucose homeostasis, exhibiting hypoglycemic and hypolipidemic effects in hyperglycemic rats, likely through the regeneration and proliferation of islet cell-related genes.

Keywords: *Mirabilis jalapa*, hyperglycemia, root extract, Diabetes mellitus

PHCOL-023:

AMELIORATIVE EFFECTS OF VIRGIN COCONUT OIL ON BLOOD GLUCOSE LEVELS AND OXIDATIVE STRESS BIOMAKERS ON EXPERIMENTAL DIABETIC MALE WISTAR RATS

¹*Dogara, J.K., ²Yusuf, T.

^{1,2}Department of Physiology, Faculty of Medicine, Ahmadu Bello University, Zaria

*Corresponding author: jibrildkabar@gmail.com Phone: 08069122805

ABSTRACT

Oxidative stress plays a major role in the pathogenesis of diabetes mellitus, and there is closed relationship between free radicals, diabetes, and its complications. The aim of study was to evaluate the ameliorative effects of Virgin coconut oil in experimental diabetic rat using alloxan. A total of 25 adults male Wistar rats were randomly assigned into 5 groups with 5 rats each. Group I were the normal rats fed with rat chow diet, group II, III, IV and V were the diabetic groups and were fed with a normal rat chow diet, 5, 10 and 20% virgin coconut oil diet respectively. The results showed statistically significant lower fasting glucose and higher serum insulin levels in all the diabetic treated group when compared with the diabetic control group. Similarly, it also revealed statistical decreased levels in MDA levels in all the diabetic treated group and no statistical difference observed in the serum SOD and catalase activities. The study concludes, virgin coconut oil lowered blood glucose, increases serum insulin levels and it mitigate lipid peroxidation in alloxan-induced experimental diabetic male Wistar rats.

Keywords: Diabetes, virgin coconut oil



PHARMACEUTICS (PHCEU)



PHCEU-001

IMPACT OF A POLYHERBAL FORMULATION ON THE DISSOLUTION PROFILE OF CIPROFLOXACIN TABLETS

¹*Poyi, O.C., ²Yashim, C.D.¹Department of Pharmaceutical and Medicinal Chemistry, University of Jos, Jos, Nigeria²Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University, Kaduna, Nigeria

*Corresponding author: poyio@unijos.edu.ng, Phone: +2348036156694

ABSTRACT

Ciprofloxacin is a synthetic broad spectrum fluoroquinolone antibiotics, which binds to and inhibits bacteria DNA gyrase; due to high price and side effects experienced with orthodox medicines, patients and their care givers are tilting towards the use of alternative medicine. Dr Iguedo Goko Cleanser® a polyherbal formulation is a highly patronised herbal remedy in Nigeria acclaimed for its effectiveness in the treatment of bacterial infections. This study investigated the impact on dissolution profile of the concomitant administration of ciprofloxacin and Dr Iguedo Goko Cleanser®. This study employed dissolution testing of ciprofloxacin tablet alone and in presence of the polyherbal mixture in different concentrations (15ml, 30ml, 60ml and 90ml) in hydrochloric acid (pH 2). The dissolution rate of ciprofloxacin was greatly reduced when administered concomitantly with the polyherbal formulation, suggesting an antagonistic drug-herbal interaction. This study recommends the avoidance of concomitant administration of the polyherbal formulation with ciprofloxacin.

Keywords: Ciprofloxacin, polyherbal, drug-herbal interactions

PHCEU-002

FORMULATION AND EVALUATION OF CREAMS CONTAINING METHANOLIC LEAF EXTRACT OF MOMORDICA BALSAMINA LINN (CUCURBITACEAE) FOR ANTIMICROBIAL ACTIVITY

¹*Kadiri, O.J., ²Anukam, N.C., ³Oyiza, M.J., ⁴Chris-Otubor, G.O.^{1,2,3}Department of Pharmaceutical Technology and Industrial Pharmacy, ⁴Department of Pharmaceutical Microbiology and Biotechnology, Faculty of Pharmaceutical Sciences, University of Jos, Nigeria

*Corresponding author: kadiriokai37@gmail.com, Phone: 08053206355

ABSTRACT

Momordica balsamina Linn (Cucurbitaceae) plant possesses both medicinal and nutritional properties and has been used for its nutritional and medicinal benefits. Herbal medicines like any other drugs are usually presented in a form which is stable, effective, efficacious and acceptable to the consumers. The aim of this study was to formulate the methanolic leaf extract of *Momordica balsamina* as cream for the treatment of microbial skin infections, and evaluate the properties of the products. The antibacterial property was assessed by agar well diffusion method using *Staph aureus* and *Candida albicans*. A 10 % w/w *Momordica balsamina* extract was incorporated into aqueous Cream BP, Buffered Cream BP and Oily Cream BP. The antimicrobial activity, consistency, pH, and extrudability of the herbal creams were evaluated by suitable methods and techniques. The results showed that all the creams had good inhibition zone diameter but herbal cream formulated with the Aqueous Cream BP base had higher inhibition zone diameter of 21±0.60 and 20±0.41 mm against *S. aureus* and *Candida albicans* respectively when compared to the others. The creams had similar extrudability profiles. On the basis of the findings, all the cream bases could be employed as suitable bases for formulating cream containing the extract.

Keywords: *Momordica balsamina*, antimicrobial activity, cream formulation

PHCEU-003

FORMULATION AND EVALUATION OF CREAMS CONTAINING ETHANOLIC EXTRACT OF *OCIMUM GRATISSIMUM* LINN (LAMIACEAE) AND *CHROMOLAENA ODORATA* LINN (ASTERACEAE) FOR ANTIMICROBIAL ACTIVITY*¹Kadiri, O.J., ²Onoja, V., ³Yusuf, O.V.^{1,3}Department of Pharmaceutical Technology and Industrial Pharmacy, ²Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, University of Jos, Nigeria

*Corresponding author: kadiriokai37@gmail.com, Phone: 08053206355

ABSTRACT

Chromolaena odorata Linn (Asteraceae) and *Ocimum gratissimum* Linn (Lamiaceae) plants possess antimicrobial activities and medicinal benefits. The extracts of these medicinal plants could be presented in a form that is stable, effective, efficacious and acceptable to the consumers. The aim of this study was to formulate the ethanolic leaf extract of *Chromolaena odorata* and *Ocimum gratissimum* as cream for the treatment of microbial skin infections, and evaluate the properties of the products. The antimicrobial property of the plants was assessed by agar well diffusion method using *Staph. aureus*, *Pseudomonas aeruginosa* and *Candida albicans*. A 7.5 % w/w extract each of both plants was incorporated into Aqueous Cream BP, Buffered Cream BP and Oily Cream BP. The herbal cream were evaluated using suitable methods and techniques. The results showed that herbal cream formulated with the Oily Cream BP had higher inhibition zone diameter against the test organisms than the others. The creams had extrudability of 23.67±0.6, 31± 0.4 and 29.41± 0.8 for oily, aqueous and buffered creams respectively. On the basis of these findings, all the cream bases could be employed as suitable bases for formulating cream containing the extract preferably Oily Cream BP.

Keywords: *Ocimum gratissimum*, *Chromolaena odorata*, creams; evaluation

PHCEU-004

FORMULATION AND EVALUATION OF PHYSIOCHEMICAL PROPERTIES OF SOAP CONTAINING TURMERIC POWDER (*CURCUMA LONGA*)¹Rabiu, Z., ¹Imam, A.F., ¹Safiyanu, M., ¹Sani, F.A., *¹Oseni, F.A., ²Maigari, F.U.¹Department of Biochemistry, Yusuf Maitama Sule University, Kano²Department of Biochemistry, Gombe State University, Gombe, Nigeria

*Corresponding author: faoseni@yumsuk.edu.ng Phone: 07062653967

ABSTRACT

Soap, a commonly used cleansing agent is formed through saponification process. In this study, *Curcuma longa* powder (CLP), commonly known as turmeric powder, was added with the purpose of cleansing the skin. The aim of this research is to formulate and evaluate physiochemical properties of soap containing CLP, with a focus on its potential enhanced skincare benefits. The formulated soaps (FSs) F1 (11.80g CLP with additive) and F2 (11.80 g CLP without additive) were analyzed for physiochemical properties; pH, foam height (FH), acidity, colour, smell, total alkali content (TAC) and the total fatty matter content (TFMC) and compared with a commercial soap (CS). The F1 gave a pH value of (9.55), this was within the international standard for organization (ISO) value (8.00 - 10.50), while F2 and CS produced a slightly higher values (11.08 and 12.05) than the standard. Foam height for the FSs ranged from (1.50 cm -1.93 cm). Resulting colours were: F1 (light pink), F2 (dark brown) and CS (pale yellow). Acidity were shown in permanent pink, F1 (+++), F2 (+++) and CS(++). The soaps were found to have pleasant smell, TFM values were within (65.33 % -70.30 %) and were of grade 1 and 2 ISO standards, TAC which ranged from (1.42 % - 1.98 %) were also within the standard. The turmeric formulated soaps were found to have certain beneficial properties, were less acidic and maybe less damaging to the skin. Thus, will help prevent rancidity when compared with the commonly available commercial soap.

Keywords: *Curcuma longa*, physiochemical properties, skin care, soap.

PHCEU-005

EFFECT OF PROCESSING CONDITIONS ON PHYTOCONSTITUENTS OF GINGER AND SPEARMINT AQUEOUS EXTRACT, LYOPHILIZED POWDER AND GRANULES

¹Aliyu, Y., ²Idris, A.M., ²Abba, A., ²Umar, S., ³Bala, A.A., ⁴Mohammed, A., ¹Mahmud, H.S., ¹Musa, H., ¹Abdulsamad, A., ²Mudi, S.Y.

¹Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmaceutical Sciences, Ahmadu Bello University, Zaria, Nigeria

²Department of Pharmacognosy and Herbal Medicine, Faculty of Pharmaceutical Sciences, Bayero University Kano

³Department of Pharmacology, Faculty of Basic Clinical Sciences, Federal University Dutse

⁴Department of Pharmaceutical Microbiology and Biotechnology Faculty of Pharmaceutical Sciences Bayero University Kano, Nigeria

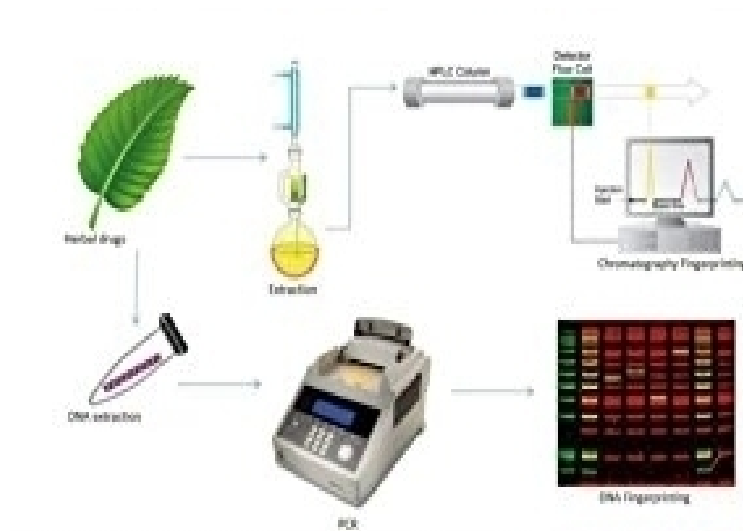
*Corresponding author: yahayaali20@gmail.com; yaliyu@abu.edu.ng; Phone: +2348039569459

ABSTRACT

Freeze drying of herbal tea spices' extracts preserves the bioactive compounds while maintaining flavour, aroma and colour. The work aims to evaluate the phytochemicals at the proceeding stages in the formulation of herbal tea granules using freeze-drying techniques. Herbal tea spices, *Zingiber officinale*, and *Mentha spicata* were selected for this study. Aqueous extracts of the herbs were lyophilised and subsequently granulated with mannitol to obtain coarse-sized granules. The phytochemical component of the extract, lyophilised powder and granules were determined. The content of Alkaloids (17.81-8.94 mg/gm) and (15.15-9.23 mg/gm); Flavonoids (129.93-61.12 mg/gm) and (95.13-48.34 mg/gm); Saponins (28.47-17.41 mg/gm) and (29.07-17.01 mg/gm); Triterpenes (14.50-10.11 mg/gm) and (14.32-12.32 mg/gm); C/glycosides (28.56-21.26 mg/gm) and (27.42-22.41 mg/gm) present in *Zingiber officinale* were higher than those in *Mentha spicata* while quantities of Phenols (128-99.29 mg/gm) and (146.33-102.54 mg/gm); Steroids (15.88-12.49 mg/gm) and (14.57-10.31 mg/gm); Carbohydrates (125.82-144.31 mg/gm) and (143.57-149.46 mg/gm); Tannins (82.33-33.56 mg/gm) and (99.00-41.26 mg/gm) were higher in *Mentha spicata* than in *Zingiber officinale*. The phytochemicals present in both herbs follow similar trends: aqueous extract > lyophilised powder ≥ granules. The lyophilised powders and granules of *Zingiber officinale* and *Mentha spicata* maintained the same colour as the herbs' smooth texture. They were readily soluble in hot and cold water. Findings proved that the herbal extract contains medicinal phytoconstituents, and the processing conditions could significantly ($p < 0.05$) affect their concentrations at different stages. While freeze-drying presents significant benefits for herbal spices, careful optimisation is essential to maximise the retention of beneficial compounds.

Keywords: Herbal tea granules, phytoconstituents, freeze drying, tea spices

STANDARDIZATION AND QUALITY CONTR (STAQC)



STAQC-001:**INVESTIGATION ON PHYTOCHEMICAL STANDARDIZATION, ORAL ACUTE TOXICITY AND NUTRACEUTICAL PROFILES OF AQUEOUS EXTRACT OF AG-S90 POLYHERBAL FORMULATION IN OKENE, L.G.A., KOGI STATE*****¹Tijani, K.B., ²Magaji, M.G., ³Ya'u, J., ⁴Danmalam, H.U., ⁵Funso, F.B.**¹Department of Pharmacology & Therapeutics, Faculty of Basic Clinical Sciences, College of Health Sciences, Prince Abubakar Audu University, Anyigba, Kogi State, Nigeria.^{2,3}Department of Pharmacology & Therapeutics, ⁴Department of Pharmacognosy & Drug Development, Faculty of Pharmaceutical Sciences, Ahmadu Bello University, Zaria, Nigeria,⁵Department of Pharmacology and Therapeutics, Faculty of Medical Sciences, University of Nigeria, Nsukka, Nigeria*Corresponding author: kbtbiochempharma@gmail.com**ABSTRACT**

The use of herbal medicine in Okene L.G.A., Kogi State is frequent and people patronize AG-S90 polyherbal formulation for nutriment, treating problems of pain, inflammation and pyrexia. Recently, people switch-over to herbal medicine for primary healthcare needs due to difficult economic situation. Thus, no evidence from scientific data available on this product. The aim of study was to investigate the phytochemical standardization, nutraceutical profiles and oral acute toxicity in Wistar rats. The phytochemical screening was performed according to standard methods, followed by TLC, FTIR, GC-MS and HPLC analysis on aqueous extract of AG-S90 (AEAG-S90). The acute oral toxicity study was performed according to OECD 425 TG for 14 days using Up-and-Down procedure. The phytochemical screening of AEAG-S90 revealed presence of alkaloids, cardiac glycosides and flavonoids among others. The FTIR revealed all bioactive functional groups, GC-MS revealed volatile compounds and HPLC revealed bioactives such as allicin, thymoquinone and Quercetin in AG-S90. Nutraceutical profiles showed that AEAG-S90 contained all classes of food nutrients with herbominerals. Acute toxicity study showed no behavioural aberrant, deaths or signs of toxicity which showed the safety for human consumption with LD₅₀>5000 mg/kg. This study could be of interest to incorporate herbal medicine into national healthcare system with a view to use of AG-S90 as novel drug development for analgesic, anti-inflammatory and antipyretic with nutraceutical potentials. The result of this study could therefore justify the folkloric usage of AG-S90 to treat diseases and malnutrition locally.

Keywords: Phytochemicals, standardization, toxicity, AG-S90 nutraceuticals**STAQC-002:****ELEMENTAL COMPOSITION AND DISTRIBUTION IN SOIL AND SOME MEDICINAL PLANTS GROWING IN NORTHERN NIGERIA*****Yahaya, Z.I., Aliyu, A.B., Ajibola, V.O.**

Department of Chemistry, Faculty of Physical Sciences, Ahmadu Bello University, Zaria, Nigeria

*Corresponding author: zeeibro77@gmail.com, Phone: 08037424282**ABSTRACT**

Plants of Combretum genus are used as antimicrobial and anti-inflammatory agents in Northern Nigeria. Consumption of these herbs is faced with challenges of pollution due to increased accumulation of heavy metals in the environment and impact on plants. The aim of study was to assess the elemental composition and distribution in soils and four medicinal plants: *Combretum collinum*, *Combretum lamprocarpum*, *Combretum molle* and *Combretum sericeum* with a view to understanding safety from heavy metal pollution. The leaves, stems and roots of the four plants and their host soils were obtained in Zaria. The plant samples were washed, dried, digested and subjected to elemental analysis for Zn, Cd, Ca, Fe, Cu, As, Pb, K, Mg, Cr, Mn, Cr, and Na, using the Micro-wave plasma atomic emission spectroscopy (MP-AES). The results showed elevated concentrations of heavy metals (above the WHO limit) in leaves stems and roots of *C. lamprocarpum* (Fe, As, Mn), *C. molle* (Mn, Cd, Fe), *C. collinum* (Cd, As, Mn, Fe) and *C. sericeum* (Mn, Cd, Fe, As). Soil properties (pH, TOM, exchangeable K, Ca, Mg, Na and ECEC) indicated bioaccumulation of Zn, Ca, K, Mg and Na but there was no degree of pollution in all samples as the Igeo values were all less than zero. The elemental composition in the four medicinal plants and their host soils investigated showed high concentrations of some toxic elements, but had not constituted pollution which may indicate the safety of consumption of the medicinal plants.

Keywords: Combretum genus, heavy metals, MP-AES, bioaccumulation

STAQC-003:**AVAILABILITY AND QUALITY ASSESSMENT OF DIFFERENT BRANDS OF ARTEMISININ-BASED COMBINATION THERAPY (ACT) TABLETS CIRCULATING IN KADUNA STATE, NIGERIA**

¹Babale, A.A., ²Musa, H., ²Olowosulu, A.K., ²Ibrahim, B.A., ¹Salim I., ¹Gwarzo, M.S., ²Babawuro, A.A., ²Aliyu, Y., ¹Mohammed, S.

¹Department of Pharmaceutics and Pharmaceutical Technology, Bayero University, Kano

²Department of Pharmaceutics and Industrial Pharmacy, Ahmadu Bello University, Zaria

*Corresponding author: babalealaeju@gmail.com, Phone: +2348033441341

ABSTRACT

Malaria, a febrile illness caused by Plasmodium parasites, and is spread by female Anopheles mosquitoes, through bites. The development of anti-malarial drug resistance has posed a significant challenge to malaria control efforts and prevalence of fake and substandard medicines are contributing factors. Therefore, assessing the quality of the currently recommended Artemisinin-based Combination Therapy (ACT) is crucial for effective malaria control. This study aims to evaluate the availability and quality of ACT tablet brands circulating in Kaduna State, Nigeria and to determine if they are in conformity with official specifications.

A purposive sampling approach was utilized to obtain various brands of ACT tablets. In-vitro quality control tests were conducted using pharmacopoeia methods and WHO standards. A total of 81 different brands of ACT tablets were collected and none of the brands was mislabeled with respect to their source and or identity; this implies that none of the brands tested is counterfeit. Overall failure rates were 21% from community pharmacies, 21% from hospital pharmacies, 27% from patent medicine stores and 22% from open drug markets. Samples from patent medicine stores have the highest failure rate. Samples that failed did not meet the specifications set by official books, and are said to be substandard. Cumulatively, 22% of all the samples tested from all sources failed the tests. Among the conducted tests, the tablet hardness and dissolution tests exhibited the highest percentage of failure. The findings highlight the necessity for continuous monitoring of the circulating brands of artemisinin-based combination tablets to ensure their quality and to remain vigilant regarding the potential emergence of drug resistance.

Keywords: ACT, anti-malarial, treatment failure, counterfeit, drug resistance.

STAQC-004:**ASSESSMENT OF SOME TRACE ELEMENTS IN ETHNOMEDICINES MARKETED AT KURMI MARKET, KANO METROPOLIS, NORTHERN NIGERIA**

¹Imam, T.S., ¹Suleiman, K., ²Salisu, N., ¹Ibrahim, S.B.

¹Biological Sciences Department, Bayero University, Kano, Nigeria

²Biology Department, Ahmadu Bello University, Zaria, Nigeria

*Corresponding author: tsimam.bio@buk.edu.ng, Phone: +234-8133382562

ABSTRACT

Herbal medicines are frequently being used for treatment and management of various tropical disorders in Nigeria and Africa in general. They form part of the folklore of African cultures of which even the orthodox medicines could not edge them out of use and importance. Thus, there is the need for routine testing of some toxic chemicals (organic and inorganic) in herbal medicines that are marketed in order to ascertain their safety for consumption. This study assessed some heavy metals (trace elements) concentrations (Zn, Pb, Cd and Cr) in selected herbal medicines marketed at Kurmi market, Kano metropolis, Northern Nigeria. Triplicate samples of four (4) different herbal medicines were collected according to their usage category (i.e. antimalarial, antihemorrhoid, antiulcer and antityphoid). The samples after drying and digestion using advanced microwave digestion system, and consequently were assessed for heavy metals concentrations using Atomic Absorption Spectrophotometer (Model VGP 210) according to standard protocol. Results showed that all the sampled herbal medicines have ranges of heavy metals concentrations within the WHO health risk limits: Zn (0.0973-0.393 mg/Kg Dry Weight); Pb (0.068-0.273 mg/Kg DW); Cd (0.0012-0.0020 mg/Kg DW) and Cr (0.78-0.943 mg/Kg DW). It is concluded the herbal medicines sampled are safe for consumption as regards to the safe limits of the selected heavy metals.

Keywords: Ethnomedicines, herbal medicines, Kurmi market, trace elements

STAQC-005:

QUALITY ASSESSMENT OF CARICA PAPAYA LINN LEAF COLLECTED FROM VARIOUS LOCATIONS OF KADUNA STATE IN DIFFERENT SEASONS

*¹Bashir, A., ²Usman, M.A., ³Danmusa, U.M., ⁴Awwalu, S.¹Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University, Kaduna, Nigeria,^{2,4}Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University Zaria,³Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University, Kaduna,

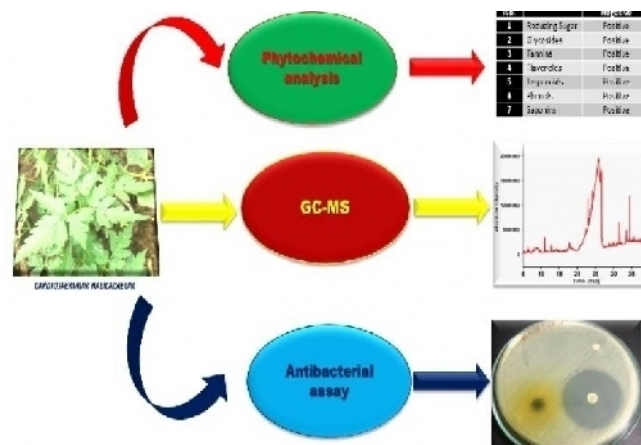
Corresponding author: babdulkadir964@gmail.com, Phone: +2348166186021

ABSTRACT

Introduction: *Carica papaya* Linn., (Caricaceae) is one of the traditionally important medicinal plants used for the treatment of various disease conditions. Seasons and sites of collection have been reported to affect the quality of herbal materials. The aim of this study was to assess and compare the quality of *Carica papaya* leaf collected in different seasons (dry and rainy) from five Local Government Areas in Kaduna State. Thirty *Carica papaya* leaf samples were collected from three collection sites in five local government areas of Kaduna State during dry and rainy seasons. They were processed and subjected to thin layer Chromatography (TLC) analyses, and Fourier transformed infrared (FTIR). The leaf samples were found to be highly similar within the functional group and fingerprint regions indicating similarities in phytochemical constituents. The binary system (Hexane and Ethyl acetate in 8:2) eluted many spots that are well resolved within ten minutes run time. Some of the spots were visualized in a day light while others were only seen under 254 nm or after spraying with 10% H₂SO₄. The various *C. Papaya* leaf samples were observed to differ in the number of spots indicating differences in the number of phytochemicals. Collection sites and seasons were found to affect the quality of *C. papaya* leaf samples.

Keywords: *Caricapapaya*, FTIR, TLC, seasons

PHYTOCHEMICAL ANALYSIS (PHYTO)



PHYTO-001:**LUPEOL AND STIGMASTEROL ACETATE FROM THE METHANOL EXTRACT OF
ACHYRANTHES ASPERA LINN. (AMARANTHACEAE)**

*Okoro, N., Abdullahi, S.M., Hassan, H.S.

¹Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria, Nigeria.*Corresponding author: nkechiawuzi@gmail.com**ABSTRACT**

Medicinal plants are a cheap, affordable and easily accessible source of drugs. Secondary metabolites isolated from plants have proved promising as lead compounds in drug discovery. *Achyranthes aspera* belongs to Amaranthaceae family. Its aerial parts are used for treating pneumonia, diarrhea, dysentery and hemorrhoids, amongst numerous indications. This study aims to isolate and characterize some of the phytochemical constituents present in *Achyranthes aspera*. The pulverized herb was extracted with methanol using cold maceration and partitioned successively between hexane, chloroform, and ethyl acetate. Silica gel column chromatographic separation of the hexane fraction using technique of gradient elution followed by isocratic elution of the column fractions led to the isolation of two compounds positive to Liebermann Burchard and Salkowski tests. The two compounds isolated were characterized as Lupeol and Stigmasterol acetate by analysis of their spectral data as well as comparison with reported literature data. These compounds might be responsible for some of the observed biological activities of the plant.

Keywords: *Achyranthes aspera*, isolation, characterization, lupeol, stigmasterol acetate.

PHYTO-002:**PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL EVALUATION OF METHANOL
STEM-BARK EXTRACT OF *LONGHOCARPUS SERICEUS* POIR. (PAPILIONACEAE)
AGAINST MDR ENTEROBACTERIACEAE CLINICAL ISOLATES***¹Ismail, S.I., ¹Abdullahi, S.M., ¹Sule, M.I., ¹Dauda, G., ¹Rabiu, H., ²Garba, S., ³Isah, M., ⁴Abdulazeez, N.¹Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria.²Department of Pharmaceutical Microbiology, Ahmadu Bello University, Zaria³Department of Science Laboratory Technology Federal University of Lafia, Nasarawa State.⁴Department of Pure and Applied Chemistry, Abdu Gusau Polytechnic, Talata Mafara.*Corresponding author: mysurayya@gmail.com, Phone: 07032291565**ABSTRACT**

Lonchocarpus sericeus- a leguminous plant, which has been used traditionally in management of convulsion, leprosy, backache, inflammation, microbial infection by the local populace. This study aimed to determine the antibacterial activity of the stem bark extract of *Lonchocarpus sericeus* on MDR Enterobacteriaceae clinical isolates. The stem bark of *L. sericeus* was extracted with methanol using cold maceration and Phytochemical screenings was carried out using standard procedures. The crude extract was tested against the multidrug resistance (MDR) Enterobacteriaceae clinical isolates (*Salmonella spp*, *Escherichia coli*, *Providencia rettgeri*, and *Serratia marcescens*) using agar well diffusion, Broth and agar dilution methods. The extract indicated the presence of flavonoids, alkaloids, tannins, steroids, carbohydrates and saponins. Antibacterial activity was observed at varying concentrations with zones of inhibition ranging from 11-18 mm at concentrations of 25 mg/mL to 100 mg/ml in all tested isolates. The extract was more effective on *Serratia marcescens* with MIC at 25 mg/ml. All other isolates were observed to be inhibited at 50 mg/ml and above. The extract was more effective against *Serratia marcescens*. Hence the stem bark extract of *L. sericeus* had significant activity against MDR Enterobacteriaceae clinical isolates.

Keywords: *Lonchocarpus sericeus*, phytochemicals, antibacterial activity, MDR clinical isolates

PHYTO-003:**STUDY ON THE PHYTOCHEMICAL CONSTITUENTS AND ANTIMICROBIAL ACTIVITIES OF *POLYALTHIA LONGIFOLIA* (MASQUERADE TREE) LEAF EXTRACTS GROWN IN TARABA STATE, NORTH EASTERN NIGERIA*****Baba, N.H., Longbap, D.B., Attahdaniel, A.S.**

Department of Chemical Sciences, Federal University Wukari, Taraba State, Nigeria

*Corresponding author: babahikon@fuwukari.edu.ng, Phone: 08065374951

ABSTRACT

The global demand for herbal remedies have increased due to the occurrence of natural products with medicinal properties in plants. *Polyalthia longifolia* (masquerade tree) belong to the family of Annonaceae, the leaves are mostly used in India as herbal remedies for different kinds of infections. The study aimed at assessing the phytochemical constituents and the anti-microbial activities of *Polyalthia longifolia* leaf extracts. A 500g of *P. longifolia* samples were collected from Taraba State, North Eastern Nigeria. Serial exhaustive extraction method was used to carry out the extraction and the phytochemical screening was carried out according to standard methods. The following yields were obtained from the crude extracts of *P. longifolia*; 0.45% for hexane extract, 1.02% for ethyl acetate extract and 1.60% for methanol extracts. The results of phytochemical screening revealed the presence of alkaloid, flavonoid, terpenoid, anthraquinones, glycoside, steroids, tannins and phenols from n - hexane, methanol and ethyl acetate extracts. The crude extracts was tested against eight bacterial (MRSA, VRE, *S. aureus*, *H. pylori*, *E. coli*, *S. typhi*, *C. jejuni*, *P. mirabilis*) and two fungi (*C. albicans* and *C. krusei*). Some are sensitive nor resistance to crude extracts. Presently, very limited work are found on *P. longifolia* especially species from Northern Nigeria. Based on the results obtained, the plant can serve as antibiotic against bacterial and fungal infections.

Keywords: *Polyalthia longifolia*, phytochemicals, antimicrobial activity**PHYTO-004:****PHYTOCHEMICAL AND ANTIVIRAL STUDIES OF *ANOGEISSUS LEIOCARPUS* (DC) GUILL. & PERR. (COMBRETACEAE)*****Ibrahim, H., Danmalam, H.U., Katsayal, U.A., Ibrahim, G., Shehu, S., Shehu, U.F., Abdurahman, E.M.**

Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria

*Corresponding author: haajara49@yahoo.com, Phone: 08060902839

ABSTRACT

COVID-19 is a viral infectious disease of the respiratory system caused by SARS-CoV-2. Sixty percent (60%) of drugs are obtained from natural sources especially plant vegetative sources. *Anogeissus leiocarpus* (DC) Guill. & Perr from the family Combretaceae is a tall tropical deciduous tree native to the savannas of tropical Africa. It is commonly used in traditional medicine for the treatment of cough and respiratory problems including symptoms during COVID-19. [There is no cure for viral infections]. The aim of this work was to document traditional uses of the plant for use during COVID-19. and to carry out phytochemical and antiviral studies. The phytochemical and physico-chemical studies were conducted using standard methods. The antiviral studies were conducted using molecular PCR technique. The phytochemical screening revealed the presence of carbohydrates, glycosides, alkaloids, terpenes and steroid. TLC, GC, HPLC indicated the presence of Quercetin and other compounds and provides chromatographic fingerprints. The moisture content was $9.4 \pm 0.39\%$ w/w water, alcohol extractives values were 6.3 ± 0.27 , $5.7 \pm 0.37\%$ w/w. The preliminary antiviral studies show promising results. The results indicated phytochemicals that might be responsible for the antiviral activity and parameters for standardization.

Keywords: *Anogeissus leiocarpus*, phytochemicals, antiviral, COVID-19

PHYTO-005:**VERNONIA AMYGDALINA: A PROMISING HERB IN THE TREATMENT OF MALARIA**

*Lawan, U.

Department of Biochemistry, Yusuf Maitama Sule University, Kano, Nigeria

*Corresponding author: lawan.umma@yahoo.com, Phone: 08065531732

ABSTRACT

Vernonia amygdalina ("bitter leaf" in English; "Shuwaka" in Hausa) is used for the management of malaria in Africa and other parts of the world with little or no scientific backing. The aim of this research was to evaluate the antimalarial activity of *Vernonia amygdalina* (VA) leaves ethylacetate extract against *Plasmodium berghei*. The study assayed for in vivo antiplasmodial effect of ethylacetate extract of the plant. The plant was fractionated using column chromatography. Further fractionation and isolation was guided by in vitro antiplasmodial assay and the characterization/identification of compounds done by LC/MS (QTOF-MS/MS in positive and negative ion modes) and supported by FTIR. The plant showed a significant progressive reduction in parasitemia level with time when administered daily for four days (Suppressive Test). At the highest dose of administration (400mg/kg bw) VA produced 95.42% suppression of parasitemia which is almost similar to the 96.08% percentage suppression shown by the standard drug (Combisunate 20/120). The antimalarial activity of the plant may be associated with terpenoids and alkaloids (isolated from the plant in previous research) which act via inhibition of plasmepsin and ferrochelatase enzymes. *V. amygdalina* ethylacetate leaf extract could have antiplasmodial activity. The constituents of the plant could be beneficial in the management of malaria as used traditionally.

Keywords: *Vernonia amygdalina*, herb, malaria**PHYTO-006:****COMPARATIVE PHYTOCHEMICAL AND PHYSICOCHEMICAL EVALUATION OF TELFAIRIA OCCIDENTALIS HOOK. F (FLUTED PUMPKIN) LEAVES CULTIVATED WITH ORGANIC AND INORGANIC MANURE**

*Bello, H., Daniel, F.

¹Department of Botany, Ahmadu Bello University, Zaria,

*Corresponding author: hbello855@gmail.com, Phone: 07064795286

ABSTRACT

Fluted pumpkin is a common leafy green vegetable in West Africa, prized for its nutritional and medicinal value. The aim was to evaluate the phytochemical and physicochemical properties of fluted pumpkin leaves cultivated with organic and inorganic manure. The cultivation were based on standard physiological process using organic manure (catfish effluent) and inorganic manure (NPK 15:15:15). The study revealed the presence of alkaloids, saponins, terpenoid/steroids, flavonoids, tannins and carbohydrates in both plant samples. I powdered sample cultivated with organic manure showed higher moisture content (11.33%) as compared to (5.12%) cultivated with inorganic (NPK). The water-soluble ash of *T. occidentalis* cultivated with organic and inorganic manure was (4.17%). The acid insoluble ash of *T. occidentalis* cultivated with organic manure was (4.00%) and inorganic manure (4.83%). The water extractive value of *T. occidentalis* cultivated with organic manure was (23.20%) and inorganic manure (26.93%). While alcohol extractive value of *T. occidentalis* cultivated with organic manure was (24.27%) and inorganic manure (23.73%). This study provided valuable insights into the importance of cultivations of *T. occidentalis* and it revealed higher concentrations of phytochemicals were present in *T. occidentalis* cultivated with organic manure when compared with inorganic samples

Keywords: *Telfairia occidentalis*, fluted pumpkin, physicochemical, phytochemicals

PHYTO-007:

MICROWAVE-ASSISTED EXTRACTION OF *ANOGEISSUS LEIOCARPUS* EXTRACT AND ITS ANTI-INFLAMMATORY ACTIVITY¹Andrew, C., ²Mahmud, H.S., ³Habila, J.D.¹Department of Chemical Sciences, Federal University Wukari, Nigeria^{2,3}Department of Chemistry Ahmadu Bello University, Zaria, Kaduna State,*Corresponding author: chrysantusandrew@gmail.com Phone: 07035070580

ABSTRACT

Plant extracts contain metabolites that can be used as medicines to cure diseases. This study evaluates the anti-inflammatory activity of the extract of *Anogeissus leiocarpus* (AL) obtained using a microwave-assisted extraction. Four solvents n-hexane, chloroform, ethyl acetate, and methanol in the order of increasing polarity were used for extraction. TLC analysis of the extracts was carried out using n-hexane and ethyl acetate in a ratio of 7:3. The percentage yield of the extract obtained from the solvents was: M(4.39%)>HEX(3.29%)>CH(3.17%)>EA(0.37%). TLC analysis of the extracts revealed the presence of three chemical compounds in the Code1/HEX extract and Code2/CH extract; two chemical compounds in Code1/M extract and one chemical compound in the extracts of Code1/CH, Code1/EA, Code2/HEX, and Code2/M. The anti-inflammatory studies indicate that the percentage inhibition of the extracts was 4.08% (hexane extract), 2.93% (chloroform extract), 3.55% (ethyl acetate extract), and 3.97% (methanol extract) at the same concentration of 31.2 µg/ml of diclofenac sodium whose percentage inhibition was 1.57%. The present study demonstrates that the extracts of AL could be used as an anti-inflammatory agent against diseases.

Keywords: *Anogeissus leiocarpus*, extraction, anti-inflammatory activity

PHYTO-008:

ANTIOXIDANT AND *IN VITRO* β-HEMATIN INHIBITION POTENTIALS OF THE n-HEXANE FRACTION AND ITS ISOLATED COMPOUND FROM THE AERIAL PARTS OF *VERNONIA CINEREA* LESS. (ASTERACEAE)^{1*}Isa, H., ²Katsayal, U.A., ³Abdulrahman, E.M., ⁴Maje, I.M., ⁵Nasir, H.A., ⁶Sadam, A., ⁷Dauda, G.^{1,2,3}Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria⁴Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria,^{5,6,7}Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria, Nigeria*Corresponding author: hassanatuaisa@gmail.com, Phone: 08077871680

ABSTRACT

Vernonia cinerea, is a plant belonging to the Asteraceae family. It is used in ethno-medicine for the treatment of various diseases, including malaria. Antioxidant use in malaria infection confers protection to the erythrocytes membrane of the host and prevents parasite from damaging intact red blood cells. Heme accumulates when the plasmodium utilizes hemoglobin of the host and, an antimalarial agent with the ability to inhibit the conversion of heme to hemozoin is regarded as an invaluable target to fight the infection with β-hematin inhibition as an excellent tool for the evaluation of herbal extract. The aim was to isolate and assess the antioxidant and β-hematin inhibition activities of the n-hexane fraction (HF) and its isolated compound from the methanol extract of the plant's aerial parts. Standard protocols were used to purify the HF using column chromatography and the pure compound is analysed using FT-IR and NMR spectroscopic techniques to determine the nature of chemical structure. Pure compound obtained is used for antioxidant and β-hematin activities. A compound was isolated from the HF coded as VC3 and identified by NMR spectroscopy as a mixture of triterpenoids. Radical scavenging activity showed ascorbic acid to be more than twice the effect in comparison to HF and VC3. However, the result of β-hematin inhibition of the isolated compound was higher than the positive standard as well as HF. Both HF and VC3 are non-polar, the isolated compound showed slight antioxidant and appreciable β-hematin inhibition effects.

Keywords: Antioxidant, β-hematin, *Vernonia cinerea*

PHYTO-009:**ISOLATION, CHARACTERIZATION AND MECHANISTIC INSIGHT OF A FLAVONOID FROM NIGERIAN RED PROPOLIS AS POTENTIAL ANTIMICROBIAL AGENT**^{1*}Iyen IS, ²Igoli, J.O., ³Malu, D.G., ⁴Tor-Anyiin, T.A., ⁵Anyam, J.V., ⁶Santali, E.¹Department of Chemical Sciences, Federal University Wukari, Nigeria,^{2,4,5}Department of Chemistry, Joseph Sarwuan Tarka University, Makurdi, Nigeria,³Computational and Bio-Simulation Research Group, University of Calabar, Calabar, Nigeria,⁶Department of Pharmaceutical Chemistry, College of Pharmacy, Taif University, Taif-Saudi Arabia*Corresponding author: udegbunam@fuwukari.edu.ng Phone: 08035232701**ABSTRACT**

Propolis, known as bee glue, is a resinous substance produced by honey bees by mixing saliva, beeswax, and other botanical sources. It is used as an unconventional drug and dietary supplement for improving health and preventing diseases. This study aimed to isolate and characterize chemical structure of compounds in the sample, evaluate its antimicrobial activity, assess its reactivity and stability in different solvents and explore its antibiotic potential through molecular docking and pharmacokinetic analysis. The ethyl acetate extract was fractionated using column chromatography, with structural elucidation achieved through NMR and HR-LC-MS techniques. Antimicrobial assay was conducted using agar well diffusion. The isolated compound's reactivity, stability, and electronic distribution across different solvents was done using Frontier Molecular Orbital (FMO) and UV/Vis excitation studies. The ethyl acetate extract afforded a flavonoid, Neovestitol (NVT), identified as a compound with two aromatic rings and a pyran ring structure which showed significant antimicrobial activity against tested pathogens. Variations in solvent-dependent behavior were observed, influencing electronic state transitions as revealed by UV/Vis excitation spectra. Molecular docking simulations against VRE and *C. jejuni* demonstrated strong binding affinities of NVT -7.2 and -6.9, respectively, surpassing standard antibiotics like Linezolid -5.4 and Erythromycin -6.6. Pharmacokinetic analysis indicated favorable safety profiles and highlighted NVT's potential for clinical applications. This study provides a comprehensive exploration of NVT, detailing its chemical structure, antimicrobial activity, solvent-dependent behaviour, and antibiotic potential. NVT shows promising characteristics for therapeutic development, suggesting it as a potential drug candidate against resistant pathogens.

Keywords: RedPropolis, Neo-vestitol, antimicrobial-resistance, molecular-docking**PHYTO-010:****PHYTOCHEMICAL ANALYSIS AND ANTIBACTERIAL ACTIVITY OF ACETONE EXTRACT OF *TERMINALIA CATAPPA* LINN. LEAVES**^{1*}Barde, A., ²Oloyede, R.B., ³Haruna, A., ⁴Muhammad, A., ⁵Bashir, A.IJ., ⁶Jimoh, A.A.

Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University, Kaduna, Nigeria

*Corresponding author: bardeazimi93@gmail.com, Phone: 07040575200**ABSTRACT**

Traditional medicine has utilized the leaves of the *Terminalia catappa* for diverse health benefits, with documented antibacterial, antidiabetic, anti-inflammatory, antioxidant, anti-viral, and hepato-protective properties. The aim of this research is to conduct phytochemical analysis and antibacterial assay of the acetone extract of *T. catappa* leaves. The dried leaves were extracted using 50% acetone, and preliminary phytochemical screening, TLC profiling, GC-MS analysis and antibacterial assay of the extract was carried out using agar diffusion method, adopting gentamicin as control. Preliminary phytochemical screening indicated the presence of carbohydrates, flavonoid, saponins, alkaloids, glycosides, phenols, terpenoids, steroids/triterpenoids. GC-MS analysis revealed the presence of epiglobulol and thirteen other phytochemicals, which have been reported to possess antibacterial activity, with epiglobulol having the highest concentration among all the phytochemicals identified in the analysis. The inhibition zone diameters varied between 0 and 15 mm for *S. aureus*, 0 to 12 mm for *S. pneumonia*, 0 to 12 mm for *E. coli*, and 0 to 8 mm for *Pseudomonas spp*, with higher extract concentrations resulting in larger zone inhibitions. The acetone extract of *T. catappa* leaves was analyzed for phytochemicals, revealing the presence of several constituents which have been reported to exhibit antibacterial properties.

Keywords: *Terminalia catappa*, GC-MS, antibacterial activity

PHYTO-011:

PHYTOCHEMICAL STUDY AND ANTITRYPANOSOMAL EFFICACY OF *BUCHOLZIA CORIACEA* ENGL. (WONDER KOLA)^{1*}Abubakar, A., ²Aliyu, B.S., ³Abdullahi, N.M., ⁴Namadina, M M., ⁵Safiya, B.¹Nigerian Institute for Trypanosomiasis Research, Kano State Liaison Office,^{2,4}Department of Plant Biology, Bayero University, Kano, Nigeria.,³Department of Biology Saadatu Rimi University of Education, Kano, Nigeria.,⁵Department of Integrated Science, Federal Collage of Education, Kano State.

*Corresponding author: halifaone@gmail.com, Phone: 08032076327

ABSTRACT

Natural products from plants play a remarkable role to avert and cure different diseases from ancient times. The aim of the research was to study the phytochemical composition and antitrypanosomal activity of *Bucholzia coreacea*(wonder kola). The plant species was extracted within 2.5 L of water, methanol, hexane and ethyl acetate for 72h using maceration process a total of 20 albino rats were used, they acclimatized for (14days) with regular feeding and water and were sub divided into four groups of five (5) animals each, group (I-III) were the test group infected with the parasite and treated with 1000, 500 and 250mg/kg of the plant extract, group (IV) were the positive control infected and treated with standard drug (Diminazene acuterate) as described by Lorke (1983).The results of phytochemical screening indicated the presence of tannin, carbohydrate, saponin etc. The spectrum of GC-MS analysis of the methanol, ethyl acetate and hexane extract of *Bucholzia coriaceae* revealed the presence of 54, 38 and 32 chemical compounds which are direct characteristic of compounds that positively stops the activity of the infection in the rats caused by trypanosomiasis. This shows the potency of the plant extracts with administration of seed extract of *Bucholzia coreacea* significantly and substantially inhibited the trypanosomes in the animals treated with the plant extracts.

Keywords: *Bucholzia coreacea*, phytochemical, antitrypanosomal activity

PHYTO-012:

ANTIMICROBIAL STUDIES ON THE LEAVES AND ROOT BARK EXTRACTS OF *ADANSONIA DIGITATA* L. (MALVACEAE)^{1*}Lawal, M.D., ²Abdullahi, M.S., ³Yargamji, N.G., ⁴Mohammed, F., ⁵Haruna, A., ⁶Isah, M.¹Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria, Nigeria²Nigerian Institute of Leather and Science Technology Zaria, Kaduna, Nigeria.,³Department of Chemistry, Isa Kaita College of Education Dutsin-Ma, Katsina, Nigeria.,⁴Department of Chemistry, AZMAN University, Kano, Nigeria⁵Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University, Kaduna, Nigeria.,⁶Department of Science Laboratory Technology, Federal University of Lafia, Nasarawa State.

*Corresponding author: Idmuammar@gmail.com, Phone: 08039515848

ABSTRACT

The increasing prevalence of drug resistant pathogenic organisms has forced scientists to dwell into the efficacy of various plant materials for the treatment of diseases caused by such organisms. *Adansonia digitata* is used traditionally for the treatment of various pathogen-caused ailments. The aim of this research was to investigate the presence of some phytochemicals in *A. digitata* and evaluate the antimicrobial potential of the plant extracts against certain pathogens. The extract was screened for the presence of carbohydrates, anthraquinones, cardiac glycosides, saponins, steroids, triterpenes, tannins, flavonoids and alkaloids using standard procedures. Agar-well diffusion method was used for antimicrobial screening of the extract of which 0.5g of each of the extract was weighed and dissolved in 10ml of DMSO to obtain a concentration of 50mg/ml. Twelve clinical isolates were used to test for the antimicrobial activities of the extracts. The result shows that three of the test microbes (*VRE*, *H. pylori* and *C. albicans*) were sensitive to only the root extract, *E. coli* was sensitive to only the leaves extract; *S. aureus*, *S. pyogenes*, *P. aeruginosa* and *C. stellatoidea* were sensitive to both extracts; and MRSA, *P. mirabilis*, *C. krusei* and *C. tropicalis* were resistant to both extracts of the plant. It was concluded from the result that the methyl alcohol extracts from the leaves and root bark of *A. digitata* contain phytochemicals with antimicrobial activity and can effectively be used for drug discovery.

Keywords: *Adansonia digitata*, antimicrobial activity

PHYTO-013:**ANTIBACTERIAL ACTIVITY OF SELECTED SPICES AGAINST BACTERIAL STRAINS
(*ESCHERICHIA COLI* AND *STAPHYLOCOCCUS AUREUS*)**

^{1*}Ja' Afar, K.S., ²Sufiyanu, S., ³Ibrahim, N.M., ⁴Abdul-Azeez, K., ⁵Aminu, A.M., ⁶Ahmed, S.

^{1,2,3}Department of Biological Science, Federal University Gusau, Zamfara State, Nigeria.,

⁴Department of Food Technology, Standards Organization of Nigeria (SON), Nigeria.,

⁵Department of Laboratory Technology, Nuhu Bamalli Polytechnic Zaria, Kaduna State, Nigeria.,

⁶Department of Biological Sciences, Faculty of Science, Kaduna State University, Nigeria.

*Corresponding author: khadijatjaafar1@gmail.com, Phone: 09022171867

ABSTRACT

Spices are aromatic substances obtained from the seeds, fruits, roots, bark, or other parts of plants, and they are used to flavor, color, or preserve food. The aim of study was to investigate the antibacterial potency of *Aframomum melegueta* (alligator pepper), *Zingiber officinale* (ginger) and *Allium sativum* (garlic) against two bacterial isolates *E. coli* and *S. aureus*. Samples of spices were procured from Gusau central market Zamfara State Nigeria. The samples were ground into powder and extracted using methanol. The antibacterial assay, MIC and MBC of samples were evaluated using standard procedures. The alligator pepper extracts exhibited higher antibacterial activity against *E. coli* and *S. aureus* compared to garlic and ginger extracts. Garlic extract had the lowest (3.15mg/L) MIC on *E. coli*, while alligator pepper and ginger had the highest (12.mg/L). The MBC showed garlic as the most effective on *E. coli* (6.25mg/L), whereas alligator pepper was more effective against *S. aureus* (25mg/L). It was concluded that alligator pepper and ginger extracts have higher antibacterial activity than garlic extracts at different concentrations. Therefore, it is recommended that, these plant extracts can be used as a source of crude drugs in pharmaceutical industries in the preparation of antibacterial drugs.

Keywords: Antibacterial activity, spices, bacterial strains.

PHYTO-014:**ANTIMICROBIAL ACTIVITY OF METHANOLIC AND AQUEOUS EXTRACT OF
POLYALTHIA LONGIFOLIA STEMS ON *STAPHYLOCOCCUS AUREUS* (ATCC 25924) AND
*STREPTOCOCCUS PYOGENES***

^{1*}Adesokan, M.O., ²Laoye, U.A., ³Ibikunle, J.B., ⁴Komolafe, O.F., ⁵Onyemuwa, C.

^{1,2,5}Department of Science Laboratory Technology, Federal Polytechnic, Ayede Ogbomosho, Oyo State, Nigeria

³Department of Science Laboratory Technology, Federal Polytechnic, Offa, Kwara State, Nigeria

⁴Department of Science Laboratory Technology, Osun State College of Technology, Esa-oke, Osun State, Nigeria

*Corresponding author: adesokan01mansurat@gmail.com, Phone: 08133080049

ABSTRACT

Medicinal plants play a vital role in the sustainability of human race in this earth planet as plants continuously provide us oxygen for breathing, nutrients through edible plants and bioactive ingredients as medicine for our health. The aim was to investigate the antimicrobial efficacy of *Polyalthia longifolia* in aqueous and methanolic form and examine the level of activities between the methanol extract and aqueous of *P. longifolia*. The stem extract of *P. longifera* was prepared using aliphatic compounds such as methanol and aqueous solvents by cold extraction method, the plants sample was macerated in the solvent and allowed to stay overnight and anti-bacteria screening was done using broth diffusion method against *S. aureus* and *S. pyogenes*. The bacteria isolate was compared using 0.5CFU McFarland standard and 600nm in a UV. The results of this study shows that the methanolic extract of the stem of *P. longifolia* were more effective against the test organism than the aqueous extract. The antimicrobial potential of the extract could be ascribed to the presence of metabolites in the extract. The stem extract can be used for development of antimicrobial agents which are active against human pathogen

Keywords: *Polyalthia longifolia*, antimicrobial activity

PHYTO-015:

PHYTOCHEMICAL AND ANTIOXIDANT STUDIES OF THE ROOT- BARK EXTRACTS OF
VITELLARIA PARADOXA^{1*}Ibrahim, H.M., ²Abubakar, A.M., ³Zachariah, E., ⁴Musa, T.L., ⁵Yakubu, U.A.

Department of Pharmacognosy, Gombe State University, Gombe, Nigeria

*Corresponding author: hadeezai161@gsu.edu.ng, Phone: +2348086285190

ABSTRACT

Vitellaria paradoxa (Sapotaceae) is a multipurpose plant, utilized in most communities of East and West Africa for food, timber, medicine and source of income. The roots of the plant are utilized in traditional medicine and have been reported to have anticancer, antimicrobial and anti-inflammatory activities. The study was designed to investigate the phytochemical, acute toxicity and anti-oxidant analysis of methanol and aqueous root-bark extract of the plant. The powdered plant material was extracted successively using methanol and water. The extracts were subjected to phytochemical study using standard methods. Acute toxicity study of the root-bark extract was carried out using OECD No 423 guidelines, while the anti-oxidant analysis was carried out using standard methods of Ferric Reducing Anti-oxidant Power (FRAP) and DPPH Radical Scavenging anti-oxidant activity. The methanol and aqueous extracts were found to contain alkaloids, steroids, cardiac glycosides, flavonoids, tannins and terpenoids. The LD₅₀ for both extracts in mice was greater than 5000mg/kg. The IC₅₀ antioxidant properties for the methanol and aqueous root-bark extracts were 127.61 and 105.25, although, they were significantly lower than the ascorbic acid. The methanol and aqueous root-bark extract of *V. paradoxa* was found safe for use based on the acute toxicity profile and contains phytochemicals with antioxidant properties.

Keywords: *Vitellaria paradoxa*, root-bark, antioxidant activity

PHYTO-016:

PHYTOCHEMICAL SCREENING AND ANTI-VENOM STUDIES ON THE METHANOL
EXTRACT OF *LEPIDAGATHIS COLLINA* (ENDL.) MILNE-REDH AGAINST *NAJA*
NIGRICOLLIS VENOM^{1*}Mukhtar, U.D., ²Musa, A.M., ³Abdullahi, M.I., ⁴Bashir, A., ⁵Garba, M.A., ⁶Abdullahi, I.^{1,4,5,6}Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University,²Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria.,³Department of Pharmaceutical and Medicinal Chemistry, University of Abuja.,

*Corresponding author: umarmukhtardanmusa@gmail.com, Phone: 08032980240

ABSTRACT

Several plant extracts have shown potential inhibitory effects on snake venom enzymes and were evaluated for their antivenom activity. *Lepidagathis collina* is used ethnomedicinally in managing snakebites and envenomation. The aim was to conduct phytochemical screening on the methanol extract of *L. collina* and to evaluate the anti-snake venom potential of the extract. Phytochemical screening and LD₅₀ of the plant extract were determined using standard procedures. Venom's LD₉₉ was determined by injecting different concentrations of the venom to 4 mice groups (n=5). The *ex-vivo* detoxifying effect on snake venom was evaluated by injecting 4 mice groups (n=5) varying concentrations of the extract previously mixed with venom. In-vivo activity of the extract was determined using 4 groups of mice (n=5), group 1 receives venom only while others in addition received varying concentrations of the extract. Survival analysis was employed. Phytochemical studies revealed the presence of carbohydrates, cardiac glycosides, saponins, steroids and triterpenes, flavonoids, tannins and alkaloids, but anthraquinones are not present. LD₅₀ of the extract is greater than 5000mg/kg and LD₉₉ of the venom is 5.83mg/kg. *Ex-vivo* activity evaluation showed a significant difference (p<0.05) in mean survival time, 0% and 100% survival in group 2 and 1 respectively, and 80% in group 3 and 4. The *in-vivo* evaluation shows 100% mortality across the groups, but significantly improve (p<0.05) mean survival time. It can be concluded that *L. collina* contains phytochemicals with antivenin properties.

Keywords: *Lepidagathis collina*, snake-bite, envenomation, LD₅₀, LD₉₉

PHYTO-017:

EFFECT OF *VERNONIA AMYGDALINA* (BITTER LEAF) EXTRACT ON FUNGI INFECTED STORED TOMATO^{1*}Ibrahim, N.M., ²Abdullahi, R.I., ³Ja'afar, K.S., ⁴Aminu, A.M., ⁵Kontagora, G.F.^{1,3}Department of Biological Sciences, Federal University Gusau, Nigeria.,²Department of Botany, Ahmadu Bello University, Zaria, Nigeria,⁴Department of Science Laboratory Technology, Nuhu Bamalli Polytechnic Zaria, Nigeria.,⁵Department of Biology, Ahmadu Bello University, Zaria, Nigeria.

*Corresponding author: nafiuim@fugusau.edu.ng, Phone: 08034640652

ABSTRACT

Vernonia amygdalina (Bitter leaf) is a well-known medicinal plant with various pharmacological properties. Tomatoes are susceptible to fungal infections during storage, which leads to significant post-harvest losses and reduced quality. The use of natural plant extracts offers an alternative to synthetic chemicals for controlling fungal growth in stored tomatoes. The aim of study was to evaluate the efficacy of bitter leaf extract in inhibiting fungal growth and extending the shelf life of stored tomatoes. Fresh bitter leaves were turned into a powder and soaked in water for 24 h to create an extract. Fresh tomatoes were then inoculated with fungi and divided into two groups: one treated with the bitter leaf extract and the other left untreated. The tomatoes were monitored for 14 days to observe fungal growth and measure the zone of inhibition. *Candida* spp. showed the greatest growth inhibition (57%) when *V. amygdalina* leaf extracts were used. The aqueous leaf extracts of *V. amygdalina* exhibited the highest minimum inhibitory concentration (MIC) of 32.30 mg/ml in *A. niger*. Bitter leaf extract inhibits fungal growth and reduces spoilage in stored tomatoes, making it a promising natural preservative.

Keywords: *Vernonia amygdalina*, extract, fungi, tomato.

PHYTO-018:

CHEMICAL COMPOSITION AND MEDICINAL POTENTIALS OF *HYPTIS SUAVEOLENS* (L.) POITENSIAL OIL EXTRACTED BY HYDRO-DISTILLATION^{*1}Lawal, M., ²Muhammad, N., ²Abdullahi, B.¹ Department of Pharmacognosy and Ethnopharmacy, Usmanu Danfodiyo University, Sokoto - Nigeria²Department of Science Laboratory Technology, Federal Polytechnic, Kaura-Namoda, Nigeria.*Corresponding author: mansur.lawal@udusok.edu.ng, Phone: +2348032079743

ABSTRACT

Hyptis suaveolens (L.) Poit. is a medicinal plant that is widely used by indigenous people across the globe for its insecticidal and medicinal properties. *H. suaveolens* is native to tropical America, but found in several parts of the tropical world including Nigeria. *H. suaveolens* is an important source of essential oils, which are majorly obtained exclusively from its leaves, and other aerial parts. This study is aimed at evaluating the chemical composition of essential oil of *H. suaveolens* and its medicinal potentials. *H. suaveolens* leaves were collected, authenticated, processed, dried and extracted with Clevenger apparatus using hydro-distillation method for its essential oil. Components of the essential oil were analyzed with gas chromatography-mass spectrometry (GC-MS) for 4 h. *H. suaveolens* leaves yielded 0.85% essential oil, the most abundant constituents found were Caryophyllene (40.29%), Terpenen-4-ol (33.04%), Caryophyllene oxide (12.17%), Cyclohexene (3.94%), Aromadendrene (3.39%), and Humulene (2.59%) accounting for 95.38% chemical components of the essential oil. These results suggest that *H. suaveolens* essential oil contain bioactive components with promising potentials that could be considered for development in food and pharmaceutical industries.

Keywords: *H. suaveolens*, essential oil, chemical composition, medicinal potential

PHYTO-019:**POTENTIAL OF SOLANUM MELONGENA FRUITS AND LEAF FRACTIONS IN INHIBITION OF ADVANCED GLYCATION END PRODUCTS (AGES) AND DPPH RADICAL**

*Usman, H.S., Usman, S.A., Sallau, A.B.

Department of Biochemistry, Ahmadu Bello University, Zaria, Nigeria

*Corresponding author: ummisa71@gmail.com**ABSTRACT**

Solanum melongena (SM), or eggplant, is a species of the nightshade family. In the traditional medicine system, SM possesses excellent therapeutic effects on warts, burns, arthritis and gastritis. Glycation refers to spontaneous reaction between structural or functional proteins and reactive sugar moieties. This results in formation of advanced glycation end-products (AGEs) in form of accumulated glycosylated proteins (GP). GP are known to have disrupted molecular conformation and altered enzymatic activity. The aim of this research was to determine the potential of *Solanum melongena* fruits and leaf fractions in inhibition of Advanced Glycation End Products (AGEs) and DPPH Radical. In the present investigation, fractionation of plant extract was performed using partition chromatography to obtain liquid-liquid partition fractions, followed by thin-layer chromatography. Antiglycation activity of *Solanum melongena* fractions was determined *in vitro* using BSA-Glucose model, while the plant's antioxidant effect was assessed through *in vitro* DPPH scavenging assay. Compound composition was detected using Gas chromatography-mass spectrometry (GC-MS). In both assays conducted, highest activity was seen in the chloroform fruit fraction demonstrating a significant ($p < 0.05$) antiglycation activity (99%). GC-MS detected cyclohexene-6-butyl-1-nitro, 2-isopropenyl-5-methylhex-4-enal, dibutyl phthalate, n-hexadecanoic acid, oxalic acid among numerous compounds. This outcome is expected given the numerous unique metabolites reported to be present in SM. When compared to positive controls, plant fractions had very significant antiglycation and anti-oxidant capacity. The findings in this study and previous research on this plant encourages further investigations on other pharmacological activities of this plant besides its antioxidant and antiglycation activity.

Keywords: *Solanum melongena*, antiglycation, GC-MS, chromatography**PHYTO-020:****PHYTOCHEMICAL EVALUATION, PROXIMATE ANALYSIS, AND ANTIOXIDANT ACTIVITY OF THE PEELS OF FIVE FRUITS COMMONLY CONSUMED IN NIGERIA**¹Famojuro, T.I., ²Famojuro, O.B., ¹Datok, T., ¹Abigail, R.B., ¹Odoh, R.E.¹Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Bingham University, Karu Nigeria:²Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.*Corresponding author: tayofamojuro@gmail.com Phone: +2348060742845**ABSTRACT**

Peels, either from fruits or other vegetables, are generally termed 'waste products', however, these by-products are loaded with organic chemicals like phenols, carotenoids, and vitamins, which can give similar or even higher contents of antioxidants than the main product. This study was therefore conducted to evaluate the peels of five fruits commonly consumed in Nigeria. Fresh mature fruits of five plants; *Musa acuminata*, *Citrullus lanatus*, *Citrus sinensis*, *Mangifera indica*, and *Carica papaya* were obtained from the local market, washed, and peeled. The peels were obtained, air-dried, and extracted with methanol. Their extracts were subjected to phytochemical evaluation, proximate analysis, and antioxidant activity. The phytochemical analysis showed the presence of phenols, flavonoids, alkaloids, saponins, terpenoids, carbohydrates, cardiac glycosides, and proteins in all the fruits, while none revealed anthraquinone. The proximate analysis showed that *C. sinensis* peel had the highest crude fibre content, and the highest moisture content was found in *C. lanatus* peel. *M. acuminata* peel had the highest protein content, while the highest lipid and ash content was found in *C. papaya* peel, and *M. indica* peel had the highest carbohydrate content. The anti-oxidant assay showed that all five fruits exhibited antioxidant activity, with *C. sinensis* displaying the highest antioxidant activity (IC_{50} 17.93), compared to the standard, Vitamin C (IC_{50} 10.52). This study confirmed the occurrence of important phytochemicals in the peels of the fruits, which could be responsible for their ethnobotanical applications.

Keywords: Fruit peels, phytochemicals evaluation, proximate analysis, antioxidant activity

PHYTO-021:

ANTIBACTERIAL EFFICACY OF *MORINDALUCIDA* AND *VERNONIAAMYGDALINA* LEAF EXTRACTS AGAINST ANTIBIOTIC RESISTANT *SALMONELLA* SPECIES¹Mshelia, M.B., ²Adeshina, G.O., ²Onaolapo, J.A., ³Musa, A.M.^{1,2}Department of Pharmaceutical Microbiology, ³Department of Pharmaceutical & Medicinal Chemistry, Faculty of Pharmaceutical Sciences, Ahmadu Bello University Zaria, Nigeria

*Corresponding author: bata.mari@fubk.edu.ng, Phone: +2347036546824.

ABSTRACT

Salmonella is a rod-shaped, motile, aerobic and facultative anaerobe, non-spore forming and Gram-negative organism. It is a major public health problem in developing countries. Medicinal plants are rich sources of medicine. *Morindalucida* and *Vernoniaamygdalina* have been used to treat many cases of infection traditionally. The aim of this research was to isolate and detect resistant *Salmonella* species and to determine their susceptibility to *M. lucida* and *V. amygdalina* leaf extracts. *Salmonella* species were isolated and identified from diarrheic stool samples collected from patients at Ahmadu Bello University Teaching Hospital and Medical Centre (ABUTH and ABUMC) Zaria, Nigeria. Disc diffusion method was used to determine the sensitivity of the isolates to the antibiotics. Multiple drug resistant species were then identified. The antibacterial activity of *M. lucida* and *V. amygdalina* leaf extracts at different concentrations was tested against the resistant isolates using agar-well diffusion method. High resistance was observed against Nalidixic acid (76.9%) and Ampicillin (69.2%), while least resistance was observed against Gentamicin (23.1%), Ciprofloxacin and Ceftriaxone (30.7% each). The antibacterial activity for *M. lucida* and *V. amygdalina* leaf extracts when used separately and in combination falls within the range of 9.00 to 16.20 mm, 9.00 to 16.80 mm, and 9.00 to 19.90 mm (average zones of inhibition) respectively. This study justifies the use of *M. lucida* and *V. amygdalina* as therapeutic agents used in the treatment of enteric infections.

Key words: *Salmonella* species, multiple drug resistance, *Morinda lucida*, *Vernoniaamygdalina*.

PHYTO-022:

ANTIBACTERIAL, ANTIOXIDANTS AND LCMS PROFILING OF *CENTAUREA SENEGALENSIS* (DC) METHANOL EXTRACT¹Asimi, S., ²Drammeh, A., ¹Aliyu, A.B.¹Department of Chemistry, Faculty of Physical Sciences, Ahmadu Bello University, Zaria, Nigeria²Pan African University Life and Earth Science Institute, University of Ibadan, Nigeria*Corresponding author: asimisulaiman203@gmail.com Phone: 08062161238

ABSTRACT

Centaurea senegalensis (DC) belongs to the Asteraceae family as annual scabrid herb found across West Africa. The plant is used as remedy for stomach ache, swellings and pains in northern Nigerian traditional medicine. Several species of *Centaurea* genus have been investigated for chemical and biological activity but very little information is available on the phytochemistry and therapeutic potentials of *Centaurea senegalensis*. The aim of study was to investigate the antimicrobial and antioxidants activity of *Centaurea senegalensis* with view to identify the bioactive compounds by LCMS analysis. *Centaurea senegalensis* sample was extracted with methanol using cold maceration for 72 h. The crude extract was subjected to phytochemical screening and antimicrobial activity on selected pathogens, in addition, antioxidant evaluation was carried out using DPPH and hydrogen peroxide models. LCMS analysis on the extract was carried out to identify the bioactive compounds. The phytochemical screening has revealed the presence of flavonoids, saponins, tannins, steroids and terpenes. The antimicrobial effect showed highest zone of inhibition on *Shigella dysenteriae* (24 mm) with MIC (1.25 mg/ml) and MBC (2.5 mg/ml), indicating therapeutic potential. The plant possesses strong antioxidant capacity especially on DPPH scavenging activity with $IC_{50}=8.138 \mu\text{g/ml}$. The LC-MS profiling revealed the presence of plant peptide, flavonoids and flavonoid glycoside from the 21 components separated. This study has demonstrated the therapeutic potential of *Centaurea senegalensis* methanol extract, and provided scientific basis for drug discovery and development of antibacterial agents against typhoid fever and diarrhea

Keywords: *Centaurea senegalensis*, LCMS, antibacterial, antioxidants

PHYTO-023:**PHYTOCHEMICAL SCREENING OF THE AQUEOUS FRACTION FROM STEM-BARK METHANOL EXTRACT OF *PARKIA BIGLOBOSA* (JACQ.) BENTH USING GC-MS ANALYSIS**^{*1}Akanni, I.O., ²Danmalam, H.U. ³Bolaji, R.O., ⁴Onaolapo, J.A.¹Department of Pharmaceutical Microbiology & Biotechnology, Veritas University, Abuja²Department of Pharmacognosy & Drug Development, ³Department of Pharmaceutical Microbiology, Faculty of Pharmaceutical Sciences, Ahmadu Bello University, Zaria⁴Department of Pharmaceutical Microbiology & Biotechnology, Kaduna State University, Kaduna*Corresponding author: ifeakanni@gmail.com; 07068133178**ABSTRACT**

Plants synthesize a host of secondary metabolites with attributable medicinal properties that can be harness for treatment of many disease conditions. Africa traditional healers uses different parts of *Parkia biglobosa* (African locust bean) for health benefits including: treatment of parasitic infections and circulatory system disorders among others. The aim of this study is the evaluation of the phytochemical constituents present in the aqueous fraction from *P. biglobosa* stem-bark methanol extract using GC-MS analysis. The stem-bark was extracted with Soxhlet using methanol. The extract was fractionated sequentially in petroleum ether, chloroform and water. GC-MS analysis was carried out and components were identified based on their retention indices, peak area and molecular weights using NSIT data base. Thirty-five compounds were identified, largely esters of saturated and unsaturated fatty acids. Major phytoconstituents include: 9-octadecenoic acid (*Z*)-, methyl ester (25.68 %), 9,12-octadecadienoic acid, methyl ester (11.64 %), squalene (8.74 %), 14-methyl-pentadecanoic acid, methyl ester (8.08 %), E-11-hexadecenoic acid, ethyl ester (4.59 %), Undecanoic acid, ethyl ester (3.53 %), phytol (2.74 %), octadecanoic acid, ethyl ester (2.33%), and methyl stearate (2.31 %). Many of these compounds have been reported to exhibit medicinal properties, which lend credence to the use of the plant in the treatment of many ailments.

Keywords: *Parkia biglobosa*, aqueous fraction, stem-bark, GC-MS analysis**PHYTO-024:****LCMS PROFILING AND ANTIOXIDANTS ACTIVITY OF *VERNONIA PAUCIFLORA* (WILLD.) LESS. METHANOL EXTRACT**^{*1}Drammeh, A., ²Wudimwa, G.J., ²Baba, E., ²Aliyu, A.B.¹Pan African University Life and Earth Science Institute, University of Ibadan, Nigeria²Department of Chemistry, Faculty of Physical Sciences, Ahmadu Bello University, Zaria, Nigeria*Corresponding author: alhagied873@gmail.com Phone: +234 9032756193**ABSTRACT**

Vernonia genus represent hundreds of species with enormous chemical and biological properties. *Vernonia pauciflora* (Asteraceae) is an annual herb, sometimes a short-lived perennial, it grows 13-500 cm tall and is found across West Africa. The plant is used for treatment of stomach pains and infectious diseases in Nigerian traditional medicine. The aim of study was to evaluate the antioxidants activity of *Vernonia pauciflora* and profile the methanol extract using liquid chromatography-mass spectrometry with a view to identify the bioactive compounds. *Vernonia pauciflora* sample was extracted with methanol using cold maceration for 72 h. The crude extract was subjected to phytochemical screening using standard methods, and subsequently evaluated for antioxidant activity using DPPH, FRAP, TAC and hydrogen peroxide models. LCMS profiling was carried out to identify the bioactive compounds. The phytochemical screening revealed the presence of alkaloids, flavonoids, saponins, tannins, and terpenes, but steroids and anthraquinones were found absent. The antioxidant activity has indicated the effective radical inhibition on DPPH (83.71%) and hydrogen peroxide (90.23%) at 500 and 1000 µg/ml respectively. The LC-MS profiling revealed the presence of altenuene, furcoumarinic acid, codeine-6-glucosamide and furocouraminic acid. This study has revealed the chemical diversity of *Vernonia pauciflora* with the potential as free radical scavenging agent for drug discovery and development especially against oxidative stress mediated diseases.

Keywords: *Vernonia pauciflora*, LCMS, antioxidants, DPPH

PHYTO-025:**PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL STUDIES ON THE AQUEOUS ETHANOL EXTRACT OF THE LEAVES OF *WALTERIA INDICA*. LINN (STERCULIACEAE) AND AERIAL PARTS OF *EUPHORBIA HIRTA* LINN (EUPHORBIACEAE)**

Shehu, U.F., Toma, G.V., Shehu, S., Abubakar, A.Z., Adamu, A.

Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria, Nigeria

*Corresponding author: umarfarukshehu@gmail.com; Phone: +2348035376822**ABSTRACT**

The leaves of *Walteria indica* and the aerial parts of *Euphorbia hirta* are traditionally used in Africa to treat microbial infections. This study aims to provide scientific validation for their ethnobotanical uses through phytochemical screening and antimicrobial analysis of their aqueous ethanol extracts. Standard methods were used for phytochemical screening of the extracts. The agar diffusion method assessed the zone of inhibition for extracts and their combination against *P. aeruginosa*, *E. coli*, *B. subtilis*, *S. aureus*, and *A. niger*. Minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC), and minimum fungicidal concentration (MFC) were determined for the test organisms. Phytochemical analysis identified alkaloids, flavonoids, terpenoids, and phenolic compounds in both extracts. The bacterial test organisms were susceptible to the plant extracts. The combination of extracts exhibited a synergistic effect, showing enhanced inhibition zones against *E. coli* (22mm), *S. aureus* (20mm), and *B. subtilis* (22mm) at 100mg/ml, compared to individual extracts. The MIC of *W. indica* was lower than *E. hirta* for *E. coli* and *S. aureus* at 25mg/ml and 12.5mg/ml, respectively. The MBC of *W. indica* and the combined extracts at 50mg/ml against *S. aureus* was lower than *E. hirta*. *A. niger* was not susceptible to the extracts. This study provides scientific evidence supporting the traditional use of the leaves of *W. indica* and *E. hirta* in treating microbial infections.

Keywords: Traditional medicine, synergistic effects, MIC and MBC.

PHYTO-026:**ANTIOXIDANT AND ANTISICKLING STUDIES OF THE BUTANOL EXTRACT OF THE LEAF OF *DETARIUM MICROCARPUM****^{1,2}Idris, A.M., ²Ibrahim, H., ²Ambi, A., ³Tanko, Y., ⁴Khalili, M.A.R.^{1,2}Department of Pharmacognosy and Herbal Medicine, Bayero University Kano²Department of Pharmacognosy and Drug Development, ³Department of Human Physiology, Faculty of Medicine, Ahmadu Bello University Zaria⁴Faculty of Health Sciences, Universiti Sultan Zainal Abidin, MalaysiaCorresponding author: imaliyu.phd@buk.edu.ng**ABSTRACT**

Medicinal plants are the cornerstone of healthcare service in many rural communities. Studies have shown that sickle cell patients use a combination of herbs such as *Detarium microcarpum* to reduce the episodes of crisis. Antioxidant phytochemicals from plants have been reported to play a role in the management of sickle cell disease. Quantitative and qualitative phytochemical screening of BEDM was carried out according to established protocols. LC-MS was used for preliminary identification of BEDM phytoconstituents. The total phenolic content (TPC) and total flavonoid contents (TFC) were estimated using colorimetric assays. The antioxidant activity of the sub-fractions of butanol extract were analysed by DPPH method. Emmel's method was used to evaluate the antisickling activity of butanol extract of the plant. Alkaloids, phenolics, flavonoids, saponins and tannins detected were estimated as 78.62, 154.34, 119.98, 81.33 and 25.36 mg/g respectively. LC-MS revealed the presence of citrucin C, quercetin-3-galactoside, acetyl-11-keto- β -boswellic acid, tetraphenylcabaldehyde and polyoxyethylene. Chromatographic sub-fractions 18A, 22A, 24A and 24B of the butanol extract showed TPC values of 5, 4.1, 8.9 and 30.7 mg/g, while the TFC values were 31.2, 31.6, 22.4 and 29.2 mg/g. The antioxidant assay showed that subfraction 22A had the highest (IC₅₀ 98 μ g/mL) activity and 24A with the lowest (IC₅₀ 190 μ g/mL) radical scavenging activity. BEDM was able to reverse 82.78 % of the sickled cells to normal. Thus, the antioxidant compounds from BEDM may be responsible for the antisickling activity of the plant.

Keywords: *Detarium microcarpum*, sickle cells, antioxidants, LCMS analysis

PHYTO-027:

GREEN SYNTHESIS OF SILVER NANOPARTICLES USING *VERNONIA COLORATA* (WILLD.) DRAKE EXTRACT AND ITS ANTIBACTERIAL ACTIVITY*¹Zakari, A., ¹Adefila, A.J., ²Drammeh, A., ¹Aliyu, A.B.¹Department of Chemistry, Faculty of Physical Sciences, Ahmadu Bello University, Zaria, Nigeria²Pan African University Life and Earth Science Institute, University of Ibadan, Nigeria*Corresponding author: ameenahzakari@gmail.com Phone: 09068087189

ABSTRACT

Green synthesis is a sustainable processes or methods of producing new materials without using hazardous or toxic chemicals. Synthesis of silver nanoparticles (Ag-NPs) using medicinal plant extracts have attracted increasing interest in drug discovery and drug delivery research due to unique physical, chemical and biological potentials. The aim of study was to synthesize silver oxide nanoparticles (AgNPs) using AgNO₃ and *Vernonia colorata* extract and characterize by Scanning electron microscopy (SEM), UV-visible, FT-IR spectroscopy and evaluate the antimicrobial activity. The extraction of *V. colorata* was carried methanol/water 60:40 as solvent at 50°C for 1 h. The filtrate was stirred with AgNO₃ (8 mM) at 50°C for 1 h. The resultant product was centrifuged and dried in an oven at 80°C for 12 h. The Ag-NPs were characterized and subjected to antibacterial activity on selected bacterial pathogens using Agar well diffusion method. The UV-visible confirmed the synthesis of NPs (422-452 nm) and the presence of strong capping agents C-O (1715 cm⁻¹), OH (3339 cm⁻¹) and NH-(1513 cm⁻¹) was confirmed by FT-IR. The SEM indicated the morphology of the synthesized Ag-NPs with defined shapes and tendency of agglomeration. Our results have indicated strong antibacterial action of the Ag-NPs with interesting zone of inhibition. This study has demonstrated the potential of phytochemicals found in the *V. colorata* extract for the synthesis of Ag-NPs and their therapeutic application as antibacterial agents.

Keywords: *Vernonia colorata*, silver nanoparticles, antibacterial activity

PHYTO-028:

ISOLATION, CHARACTERIZATION, AND *EX-VIVO* ANTI-VENIN PROPERTIES OF 2,4-DIHYDROXY-4'-PRENYLOXYCHALCONE FROM THE METHANOL EXTRACT OF THE AERIAL PARTS OF *INDIGOFERA PULCHRA* WILLD (FABACEAE)

*Rabiu, H.M., Musa, A.M., Ismail, S.I., Abdullahi, S.M., Sani, Y.M., Garba, S.

Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria.

*Corresponding author: hafsatrabiu42@gmail.com Phone: 07035831951

ABSTRACT

Indigofera pulchra is a legume, pea or bean which belongs to the family Fabaceae. It is widely distributed in Nigeria in the North-Eastern and Western region. In ethnomedicines, the leaves are used to treat infected wound, itching skin and as an antidote for snake venom. It is also use as prophylactic against snake bite and for the treatment of malaria and dysentery. The study is aimed at the isolation, characterization and to study the ex-vivo antivenin properties of 2,4-dihydroxy-4'-prenyloxychalcone from the methanol extract of *Indigofera pulchra*. Preliminary phytochemical screening of the methanol extract was carried out using standard procedure. The structure of the isolated compound was identified via chemical tests, FT-IR, 1D and 2D ¹H and ¹³C NMR spectral data as well as comparison with reported data. The result of the phytochemical screening of the extract revealed the presence of flavonoids, steroids, tannins, saponins, alkaloids and triterpenoids. The isolated compound (2,4-dihydroxy-4'-prenyloxychalcone) at the doses of 200, 500 and 1000 mg/kg i. p. produced a significant (p<0.01) dose dependent *ex-vivo* antivenin activity against *Naja melanoleuca* venom. These results provide corroborative evidence for the use of *I. pulchra* aerial parts in the treatment of snake bite.

Keywords: *Indigofera pulchra*, Fabaceae, antivenin activity, NMR-analysis

PHYTO-029:

PHYTOCHEMICAL STUDIES AND EVALUATION OF BIOLOGICAL ACTIVITIES OF
STEMS OF *MENTHA SPICATA* L.

Halilu, E.M., Alhajj, L

Cyprus International University, Faculty of Pharmacy, Haspolat-Nicosia, North-Cyprus

Corresponding author: emshelia2002@gmail.com ; Phone: +2348069221840

ABSTRACT

Mentha spicata have been used in traditional medicine as carminative, antibacterial and flavoring agent due to its essential oil. The research was designed to investigate the chemical and biological activities of the stem extracts. The plant powder (20 g) was maceration in 80% methanol for 24 h and subjected to rotary evaporation to eliminate the methanol. The aqueous extract was fractionated in hexane, dichloromethane, ethyl acetate and butanol. The extract and fractions were subjected to phytochemical screening. Antioxidant activity was assayed using DPPH, H₂O₂ and β-carotene models. Disk diffusion was used for the antibacterial activity. Acute toxicity, analgesic and antiinflammatory activities were determined using standard protocols. The percentage yields of the fractions were: hexane (0.05%), dichloromethane (0.15%), ethyl acetate (0.58%) and butanol (7.56%). Tannins, flavonoids and other metabolites were detected in the extract. The samples demonstrated antioxidant activity in DPPH, H₂O₂ and β-carotene analysis. It also demonstrated antibacterial activity against *S.aureus*, *E. faecalis*, *E. coli* and *P. aeruginosa* with zone of inhibition ranging from 6-7 mm. LD₅₀ was above 5000 mg/kg in rats. The crude extract demonstrated analgesic activity in the acetic acid induced writhing in mice and inhibited pain at 200 mg/kg (69.12 % inhibition). The extract demonstrated dose dependent activity at 200 mg/kg in the late phase with 95.1 % inhibition in the formalin induced nociception. Similarly, it inhibited oedema formation in the formalin induced acute inflammation. *Mentha spicata* stem extract contains bioactive compounds which lends support to its applications in traditional medicine.

Keywords: Antibacterial, analgesic, *Mentha spicata*, phytochemical

PHYTO-030:

ANALYSIS OF THE ANTIOXIDANT AND ANTI-INFLAMMATORY POTENTIALS OF
ANOGEISUSLEIOCAPUS (DC.)GUILL.&PERR LEAF EXTRACTS^{*1}Oseni, F.A., ¹Safiyanu, M., ²Abubakar, F.A., ¹Sani, A.H., ¹Baba, A.M.¹Department of Biochemistr, Yusuf Maitama Sule University, Kano²Department of Biochemistry, University of Ilorin, Ilorin, Nigeria*Corresponding author: faoseni@yumsuk.edu.ng Phone: 07062653967

ABSTRACT

The continuing ethno-medicinal adoption of plant based management option for metabolic syndrome and neurodegenerative diseases is well documented. Phytochemistry studies have shown presence of metabolites in plants with diverse pharmacological actions. This study evaluates antioxidant and anti-inflammatory potentials of *Anogeisus leocarpa* leaf crude extracts. Two solvents, aqueous and methanol, were used for the extraction. The 2,2-diphenyl-1-picryl-hydrazyl (DPPH) radical reduction and ferric-reducing antioxidant power (FRAP) were assayed for the antioxidant evaluation. Human red blood cell membrane stabilization and the egg albumin (protein) denaturation inhibition were determined for the anti-inflammatory. Phenols, flavonoids, tannins, saponins, vitamins A, C and E were detected in the extract at appreciable varying concentrations. The extract demonstrated a high total antioxidant capacity (TAC), DPPH radical was inhibited, IC₅₀ 0.70 (aqueous) and 3.65 μg/ml (methanol). The ferric pyridyltriazine (Fe³⁺-TPTZ) complex was also reduced to ferrous ion (Fe²⁺-TPTZ). Furthermore, both extract inhibited protein denaturation and exhibited effective protection on erythrocyte haemolysis at lower concentration than the standard drug (aspirin). Aqueous extract however, has a higher % inhibitory activity and more potent possessing a lower IC₅₀ of 0.24 μg/ml not significantly different from the aspirin. In conclusion, crude extracts of *A. leiocapus* in this study demonstrated antioxidant and anti-inflammatory potentials. The vitamins, flavonoids and phenols in the extracts can contribute to the antioxidant and anti-inflammatory activities shown, therefore possible therapeutic effect of the plant could include antioxidant and anti-inflammation.

Keywords: Phytochemistry, vitamins, flavonoids, metabolic syndrome

PHYTO-031:**AN ASSESSMENT OF THE PHYTOCHEMICAL CONSTITUENTS OF *PHYLLANTHUS AMARUS* IN SOLVING VARIOUS HUMAN AILMENTS IN NIGERIA*****¹Bichi, A.M., ¹Haruna, H., ²Mohammed, M.S.**¹Department of Forestry and Wildlife Management, Ahmadu Bello University Zaria, Nigeria²Department of Plant Science, Ahmadu Bello University Zaria, NigeriaCorresponding author: alaminmagaji90@gmail.com / aminunbichi@yahoo.com Phone: 07068188086 / 08054383661**ABSTRACT**

Phyllanthus amarus commonly known as “stone breaker” is a medicinal plant with a long history of traditional use in Nigeria. This finding presents an insight of phytochemical screening of *Phyllanthus amarus* with a focus on its medicinal/therapeutic values. The study involves the collection of the plant samples from different location followed by drying, extraction and analysis of phytochemical compounds. Various phytochemical test and advance analytical techniques were employed to identify and quantify the bioactive compound present in this plant species. Methods used include alkaloid (Dragendorff Test method), Cardiac Glycosides (Keller Killani Test), Tannin (FeCl₃ Test), Flavonoid (Alkaline Test), Terpenoid and Steroid (Liebermann Burchard Test and Salkowski’s Test), Carbohydrate (Molisch Test), Anthraquinones (Bontrager’s Test). The result showed that carbohydrates, Anthraquinones, Cardiac glycoside, Saponin, Steroid, Terpenoid, Flavonoid, Tannin, and Alkaloid were in abundance, an indication as to why *Phyllanthus amarus* is considered in the treatment of various ailments. This research underscores the importance of exploring the rich biodiversity of Nigeria’s flora for its potential in the field of phytochemistry and medicine. Furthermore, the discovery of the uses of *Phyllanthus amarus* shall be popularized through public enlightenment, so that it is not taken as a mere weed without value, and shall be conserved and propagated.

Keywords: *Phyllanthus amarus*, phytochemical, phytochemistry, pharmaceutical, and therapeutic**PHYTO-032:****INHIBITORY EFFECTS OF CLOVE EXTRACT ON *ESCHERICHIA COLI* AND *STREPTOCOCCUS PYOGENES* ISOLATED FROM *KUNUN ZAKI******¹Umar, M.R., ²Idris, A.S., ²Adeleke, A.J., ³Bashir, R.A., ⁴Audi, A.U.**¹Department of Forestry and Wildlife Management, Faculty of Agriculture, Modibbo Adama University Yola, Adamawa State, Nigeria.² Department of Microbiology, Faculty of Life Science, Modibbo Adama University Yola, Adamawa State, Nigeria³ Departments of Plant Biology, College for Natural and Pharmaceutical Sciences, Bayero, University, Kano, Nigeria⁴ Department of Computer Engineering, Faculty of Engineering, Adamawa State Polytechnic YolaCorresponding author: mumar@mau.edu.ng**ABSTRACT**

These studies examine the inhibitory effects of clove extract on *Escherichia coli* and *Streptococcus pyogenes* isolate from *Kunun zaki* as medicinal plant. Laboratory analysis was carried out in determining *Escherichia coli* and *Pseudomonas aeruginosa* as isolated from *kunun zaki* and selective media were used for the isolation. Ethanolic extract of clove was used for the antimicrobial susceptibility test using agar well diffusion method on Mueller Hinton agar plates. Five (5) concentrations of ethanolic extract at different concentrations (25, 50, 75, 100 and 125 mg/ml) were used and they all had activities against the organisms. Results showed that 125 mg/ml concentration had the highest activity against both organisms with 28 mm and 23 mm respectively while 25 mg/ml concentration had the lowest activity with 14 mm and 11 mm. Dimethyl sulfoxide (DMSO) was used as the negative control while Ampicillin was used as the positive control. The highest concentration of cloves had higher activities than the positive control. Phytochemical screening of cloves was carried out and it contained components such as flavonoids, phenols. Cloves which proved to be potentially effective can be used as natural alternative preservative to control food poisoning diseases and preserve food stuffs avoiding hazards caused by chemicals. Organisms such as *Escherichia coli*, *Pseudomonas aeruginosa*, and *Bacillus cereus* are used as isolate.

Staphylococcus aureus can also be isolated from *kunun zaki*. Further experiment with a narrower range may prove useful in determining the effective concentrations of the clove as medicinal extracts.

Keywords: Cloves, *Kunun zaki*, isolates, phytochemical screening

PHYTO-033:

ANTIVENIN ACTIVITY AND ISOLATION OF KAEMPFEROL FROM THE LEAVES OF *INDIGOFERA ASTRAGALINA* DC (FABACEAE)

¹Sada, H., ¹Habila, J.D., ¹Aliyu, A.B., ¹Sallau, M.S., ²Musa, A.M.

¹Department of Chemistry, Ahmadu Bello University Zaria, Nigeria.

²Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University Zaria, Nigeria

Corresponding author: sadahadiza@gmail.com

ABSTRACT

Indigofera astragalina has been reportedly used for the treatment of diarrhea, rheumatism, arthritis, inflammation, tumor, liver diseases, cancer and snake bite. The aim is to isolate some bioactive compounds from *I. astragalina* and to investigate the anti-venin potential of the plant using laboratory animals. The crude methanol extract (MEA) of *I. astragalina* leaves significantly ($P < 0.05$) protected mice against venom-induced lethality with 83.3 % survival rate in-vitro. The EA-n-Bu (EB) fraction was subjected to purification using vacuum liquid chromatography and gel filtration. This led to the isolation of Kaempferol as the bioactive principle. The structure of the compound Kaempferol was confirmed on the basis of chemical test, 1D and 2D NMR spectroscopy and comparison with existing data in literature. The antivenin effect of the isolated compound was not tested due to insufficient quantity. However, the result of the study suggests that the leaves of *I. astragalina* possess significant *in vitro* antivenin activity and this is the first report of isolation of this compound from the leaves of the plant.

Keywords: *Indigofera astragalina*, Kaempferol, antivenin, NMR

PHYTO-034:

PHYSICOCHEMICAL AND PHYTOCHEMICAL ANALYSIS OF THE SEEDS AND OIL OF *ADANSONIA DIGITATA* L. (COMBRETACEAE) FOR PRODUCTION

¹Ibrahim, B., ²Ibrahim, H.

¹Hajnaby Ventures, Unit A2, Technology Incubation Centre, KM 7, Rigacukun, Kaduna

²Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria

*Corresponding author: haajara49@yahoo.com

ABSTRACT

The plant *Adansonia digitata* L. (Malvaceae) is used as food and as medicine. The leaves and the fruits are commonly used as food but all parts of the plant are used as medicine. The fruit pulp is used as a good source of vitamin C and phenolic compounds. The plant is used to treat stomach problems, fever, hypertension, skin infection and worm infestation. The aim of study was to carryout physicochemical and phytochemical evaluations on the seeds and oil of *A. digitata*. Physicochemical and phytochemical screening were carried out using standard methods of Evans (2016) and Sofowora (1982). Gas chromatographic analysis (GC/MS) of the oil was also carried out. The oil was extracted by direct compression. The physicochemical evaluation showed a low iodine value (1.8) and a saponification value, (28.05). The values varied slightly different from that of previous workers probably due to geographical variation and methods of extraction, but the values were within pharmacopoeia standards. Phytochemical screening of the powdered seeds indicated the presence of carbohydrates, phenolic compounds and glycosides. The GC/MS of the oil indicated the presence of various fatty acids such as linoleic, palmitic and oleic acid. The results provide values for quality control of the seeds and its oil. The values are within the pharmacopoeia standards.

Keywords: *Adansonia digitata*, Baobab, physicochemical, phytochemical, GC/MS, quality control.

PHYTO-035:**GAS CHROMATOGRAPHY–MASS SPECTROMETRY(GC-MS) ANALYSIS AND PHYTOCHEMICAL SCREENING OF BIOACTIVE COMPOUNDS IN ETHANOL LEAF EXTRACT OF *DATURA STRAMONIUM*(JIMSONWEED)**Saleh, A.^{1*}, Fatihu, M.Y.¹ and Suleiman, M.M.²¹Department of Veterinary Pathology, Ahmadu Bello University, Zaria²Department of Veterinary Pharmacology and Toxicology, Ahmadu Bello University, Zaria

*Corresponding author: amsaleh01@yahoo.com Phone: + 234 8163982665

ABSTRACT

Datura stramonium otherwise known as Jimsonweed, is an annual herbaceous plant belonging to the family *Solanaceae* which grows as weed in abandoned pastures, roadsides, cultivated fields, feedlots, barnyards, wastelands and near habitations. There are several bioactive secondary metabolites yet to be discovered with each having their own pharmacological properties. This study conducted to actuate the biochemical content of ethanol leaf extract of *D. stramonium* (ELEDs) using Agilent Gas Chromatography–Mass Spectrometry (GC-MS). Quantitative phytochemical screening of the ethanolic extracts of the leaves revealed the presence of flavonoids, tannins, alkaloids, terpenoids, steroids, phenols and tannins. The GC-MS results of the extract was relevant to the National Institute of Standards and Technology (NIST) library. GC-MS analysis of ELEM0 showed the presence of Hexadecanoic acid, methyl ester (13.805); Methyl 9-cis,11-trans-octadecadienoate and ,15-Octadecadienoic acid, methyl ester, (Z, Z)- (16.085); Squalene and 1,19-Eicosadiene (26.965); 13-Octadecenoic acid, methyl ester (6.212); Bis(2-ethylhexyl) phthalate (22.551); and Octadec-9-enoic acid (31.669). Results from this study may potentiate discovery of more valuable bioactive components of industrial and pharmaceutical importance for management of various ailments.

Keywords: *Datura stramonium*, GC-MS, secondary metabolites**PHYTO-036:****IN VITRO ANTI-PLASMODIAL ACTIVITY OF AQUEOUS AND ETHANOL STEM AND LEAF EXTRACTS OF *SENNA OCCIDENTALIS* (L.) (COFFEE SENNA)***¹Yakub, A.U., ²Mathur, A., ³Yahaya, S.¹Department of Biological Sciences, Sule Lamido University Kafin Hausa, Jigawa State, Nigeria²Department of Microbiology, Mewar University, India.³Department of Microbiology, Bayero University, Kano, Nigeria*Corresponding author: u.abba@rocketmail.com**ABSTRACT**

Development of resistance against the frontline anti-malarial drugs has created an alarming situation, which requires intensive drug recovery to develop new, more effective, affordable and accessible anti-malarial agents. Plants as *Senna occidentalis* produce a wide variety of phytochemical constituents, which are secondary metabolites and are used either directly or indirectly in the pharmaceutical industry. Phytochemical screening and anti-plasmodial activity of the aqueous and ethanol extracts of *S. occidentalis* leaves and stems were studied in this work. The preliminary screening of the leaf extracts revealed the presence of alkaloids, saponins, cardiac glycosides, quinine, protein and amino acid, phenol, flavonoids and carbohydrate and showed absence of tannins. Likewise stem extracts which shows absence of phenols in addition to tannins in the ethanol extract. The extracts were assayed at various concentration using double serial dilution (20, 10, 5, 2.5 and 1.25 mg/ml) for anti-plasmodial effect after 24, 48 and 72 h of incubation period. The result of anti-plasmodial activity revealed that both aqueous and ethanol stem and leaf extracts of the plant were effective against the malaria parasite. However, the aqueous stem extract showed greater activities than the ethanol extract. At extract concentration of 20 mg/ml, both ethanol and aqueous extracts produced highest parasite clearance rate after 72 h of incubation with percentage elimination of 77 %. From these observations, *S. occidentalis* is likely to contain promising chemical compounds which can be utilized as an effective plant-based medicine for the treatment of malaria.

Keywords: Malaria, phytochemicals, anti-plasmodial, parasite, aqueous, ethanol

PHYTO-037:

ISOLATION AND CHARACTERIZATION OF PIGMENT FROM *ANACARDIUM OCCIDENTALE* (CASHEW)^{1*}Ameen, M.O., ²Abdulrahman, S.O.^{1,2}Department of Chemistry, University of Ilorin, Nigeria

*Corresponding author: moameen@unilorin.edu.ng, Phone: 08035019199

ABSTRACT

Anacardium occidentale (Cashew fruit) is one of the tropical fruits in Nigeria. The fruit juice of cashew consists of natural pigment, which could be responsible for stains on fabrics. The present study was carried out for the isolation and characterization of pigment from the fruit juice of Cashew. Cashew fruit juice was concentrated and partitioned to obtain three (3) fractions and residue. The residue was further purified using column chromatography. Phytochemical screening, antimicrobial, antioxidants and GCMS analysis were carried out on the fractions while the purified fractions were investigated using FT-IR and UV-visible spectroscopic techniques. Phytochemical analysis indicates the presence of phenols, alkaloids, flavonoids, glycosides, terpenoids and tannins in the MeOH/DCM, MeOH/EA fractions and the residue while only the residue has saponins. The GC-MS analysis of the fractions revealed important bioactive compounds. The antioxidant activity of the residue compared to the citric acid control is higher than the MeOH/EA and MeOH/DCM fractions, while, MeOH/DCM fraction exhibits the highest antimicrobial activities. UV absorption bands and FT-IR spectra indicate the presence of hydrolysable tannins. This work has confirmed the presence of pigments in cashew fruit juice.

Keywords: Cashew-fruits, tannin-content, phenolic-content, antioxidant-activity,

PHYTO-038:

NUTRIENT COMPOSITION AND FTIR SPECTROSCOPIC UNVEILING OF BIOACTIVE COMPOUNDS IN *JATROPHA TANJORENSIS* LEAVES^{1*}Jumare, F.M., ²Anchau, Z.G., ³Ibrahim, D.^{1,2}Ahmadu Bello University, Zaria,³Federal University of Technology, Babura

*Corresponding author: fatimajumare@gmail.com Phone: 08036942030

ABSTRACT

Jatropha tanjorensis is a plant known for its rich phytochemical composition and medicinal properties, making it a subject of increasing interest in pharmacological research. This study explores the chemical and nutritional composition of *Jatropha tanjorensis* leaves through proximate analysis, mineral composition, and Fourier Transform Infrared (FTIR) Spectroscopy to unveil the bioactive compounds responsible for its medicinal properties. *Jatropha tanjorensis* leaves were collected from mature plants in Zaria, Kaduna State, Nigeria, authenticated, air-dried, and ground into powder. The powdered sample was analysed for proximate and mineral composition as well as identification of functional groups of the bioactive compounds using an Agilent Technologies FTIR spectrometer. The proximate analysis revealed 8.67% moisture, 5.25% crude protein, 12.27% crude fat, 11.33% crude fibre, 8.67% ash, and 53.81% carbohydrates. The minerals constitute calcium (4490.25 mg/kg), magnesium (776.75 mg/kg), potassium (15500.0 mg/kg), sodium (29000.0 mg/kg), and phosphorus (4322.27 mg/kg). The trace elements constituted iron (1702.00 mg/kg), manganese (57.50 mg/kg), and zinc (114.50 mg/kg). Some heavy metals detected were chromium (3.25 mg/kg), and cobalt (25.25 mg/kg). The FTIR spectra indicated the presence of several functional groups: O-H, C-H, N-H, C=O, C=C, C-O, and N-H, corresponding to phenolic compounds, hydrocarbons, amines, carbonyl groups, and aromatic compounds respectively. The overall findings indicate the therapeutic potential of *Jatropha tanjorensis* leaves warranting further phytochemical analysis and bioactivity studies to substantiate its traditional uses and explore its potential applications in nutrition, medicine, and industry.

Keywords: *Jatropha tanjorensis*, mineral content, FT-IR spectroscopy.

PHYTO-039:**ANTITRYPANOSOMAL ACTIVITY OF AQUEOUS LEAF EXTRACT OF *OCIMUM SANCTUM* L.**^{1*}Abdullahi, R.I., ²Rofiyat, A., ³Ibrahim, N.M., ⁴Jibril, A.S.^{1,2,4}Ahmadu Bello University, Zaria, Nigeria.,³Federal University, Gusau, Nigeria,*Corresponding author: raihanaabdullahi@gmail.com Phone: 08037895656**ABSTRACT**

Anti-trypanosomal effects of aqueous leaf extracts of *Ocimum sanctum* against *Trypanosoma brucei brucei* was examined. The aim of study was to examine the anti-trypanosomal effects of aqueous leaf extracts of *Ocimum sanctum* against *Trypanosoma brucei brucei*. The anti-trypanosomal activity of the extract of was carried out in a 96 well micro-titre plate. 20 µl of blood were exposed to 10 µl of the extract solution of concentrations of 2.5 mg/ml, 5mg/ml and 10 mg/ml respectively. 10 µl of the standard drug Diminazine diacetate, was used as the positive control, while 10µl of phosphate buffered saline glucose was used as the negative control. At 5 min incubation, a drop of the incubated blood sample was placed on a slide, covered with a cover-slip using a light microscope. The parasite was monitored every 5 min of a total of 60 min, the parasite motility was observed under a microscope at X400 magnification. Phytochemical screening revealed the presence of active compounds which includes; alkaloids, phenols, tannins, saponins, cardiac glycosides, carbohydrates, flavonoids, terpenoids, and steroids and further revealed the absence of anthraquinones. When the parasite was exposed to 2.5 mg/ml of the extract, the parasites were slightly weak in 5 min of exposure, under 10 min of exposure, motility ceased until 60 min. The same trend applies for 5 mg/ml and 10 mg/ml of the leaf extract, the parasite's motility ceased in 5 min till 60 min of these concentrations. It was concluded that *Ocimum sanctum* leaf extract has anti-trypanosomal activity.

Keywords: *Ocimum sanctum*, medicinal plant, anti-trypanosomal activity**PHYTO-040:****THIN LAYER CHROMATOGRAPHY (TLC) PHYTOCHEMICAL SCREENING OF MOST ACTIVE FRACTION OF *ALCHORNEA CORDIFOLIA* AQUEOUS LEAF EXTRACT**^{1*}Yusuf, I., ²Adeshina, G.O., ³Aroh, K.E.¹Department of Microbiology, Alex Ekwueme Federal University Ndufu Alike, Ebonyi State, Nigeria.,²Department of Pharmaceutical Microbiology, Ahmadu Bello University, Zaria, Nigeria.,³Department of Microbiology, Alex Ekwueme Federal University Ndufu Alike, Ebonyi State, Nigeria.*Corresponding author: wamya20@gmail.com, Phone: 07038266298**ABSTRACT**

Many bacterial species have been reported to develop resistance to antibiotics commonly prescribed for respiratory tract infections. This necessitates the need to search for alternative remedy. Many works have been carried out with a view to evaluate the antimicrobial and phytochemical constituents of medicinal plants, which may be applied for the treatment of microbial infections to which many infectious microorganisms have become resistant. The aim of the study was to determine the phytochemical constituent of the most active fraction of *Alchornea cordifolia* leaf extract using thin layer chromatography (TLC). Aqueous extract of *A. cordifolia* was obtained by cold maceration extraction. The aqueous extracts were fractionated using column chromatography. Agar-dilution method was used to determine the minimum inhibitory concentration (MIC). TLC was used to identify the phytochemical constituents of the most active fraction. Fractionation of the aqueous extract gave thirty-five (35) fractions but after pooling together of similar fractions, seven (7) different fractions were obtained (F1-F7). The MIC of the fractions showed that F2 had the lowest MIC values against all the isolates. The F2 fraction had MIC values that ranged between 2.5-5 mg/ml against *S. aureus* and 5-10 mg/ml against *Streptococcus. spp*. The TLC based phytochemical screening of the most active fraction revealed the presence of phenolic compounds and flavonoid as secondary metabolites. These secondary metabolites could be responsible for the antibacterial activity of the most active fraction.

Keywords: *Alchornea cordifolia*, phytochemistry, TLC

PHYTO-041:**ASSESSING THE EFFECTS OF LED IRRADIATION ON THE VOLATILE COMPOUNDS OF *OCIMUM BASILICUM* (SWEET BASIL)*****¹Sale, A.I., ²Yahaya, S.M.**^{1,2}Department of Biology, Aliko Dangote University of Science and Technology, Wudil

*Corresponding author: s.aliibrahimkunya04@gmail.com, Phone: 08062565374

ABSTRACT

Ocimum basilicum L. is a herb valued for its aromatic and medicinal properties. This study explores the impact of different LED light spectra on the volatile compound of *O. basilicum* (sweet basil). The aim of study was to determine the impact of LEDs on the volatile compounds of the plant. Sweet basil plants were grown in a greenhouse under various LED treatments, including sunlight, white, red, blue, and red + blue lights, for six hours daily. Using GC-MS with headspace solid-phase micro-extraction. The results showed that red + blue LED treatment notably increased methyl chavicol and methyl eugenol, while red and red + blue LEDs enhanced sesquiterpenoids like τ -cadinol and α -humulene. In contrast, compounds like β -pinene and terpinen-4-ol were suppressed under sunlight. The findings suggest that strategic use of LED light spectra can enhance the nutritional and sensory qualities of sweet basil, offering valuable insights for optimizing horticultural practices.

Keywords: *Ocimum basilicum*, volatile compounds, LED**PHYTO-042:****RECYCLING, REPROCESSING AND REUSING OF CELLULOSIC WASTES DISSOLVED IN HOMOGENEOUS AND HETEROGENEOUS SOLVENTS AND THEIR APPLICATIONS IN INDUSTRIES: AN OVERVIEW****^{1*}Baker, M.T., ²Yakub, F.A., ³Samoh, F.T., ⁴Oguntoye, O.S.**

Department of Chemistry, University of Ilorin, Ilorin, Nigeria

*Corresponding author: arowona.mt@unilorin.edu.ng, Phone: 0803 854 5666

ABSTRACT

Cellulose is the major component of herbal and agricultural by-products. These by-products mostly treated as wastes can be beneficial to man if utilized effectively. This review is aimed at analyzing the effective utilization of herbal and agricultural wastes for the benefit of man. These cellulosic wastes can be dissolved homogeneously in ionic liquids to obtain useful derivatives of economic importance. Environmental pollution is mitigated while producing raw materials for laboratories and industries. Raw materials of viable economic importance are eventually produced.

Keywords: Herbal, agricultural wastes, cellulose

PHYTO-043:**EVALUATION OF THE IMPACT OF CALCINATION TEMPERATURE ON PHYSICO-CHEMICAL CHARACTERISTICS OF SNAILSHELL**^{1*}Adelagun, R.O., ²Egah, O.G., ³Obadimu, O.C.^{1,2}Department of Chemical Sciences, Federal University, Wukari, Nigeria³Department of Chemistry, Akwa Ibom State University, Uyo, Nigeria

*Corresponding author: jemiruth2009@yahoo.com, Phone: 08065709024

ABSTRACT

Snailshells (SS) commonly disregarded natural wastes materials from homes and restaurants have received growing attention for its potential as valuable resource in various applications. Premised on appropriate technology and green chemistry, SS is applied in many industrial and agricultural processes including wastewater treatment, acidic soil treatment, medical purposes, ceramic production and soil conditioning. Calcination is a process of heating a material to high temperature in the absence of oxygen. Calcination tends to alter the crystal structure of a material as well as modify its surface area and porosity. It also leads to changes in the chemical composition of the substance. This study investigated the effects of calcination temperatures on the physicochemical properties of SS materials. SS powdered samples were subjected to varying calcination temperatures (0-950°C) and instrumental characterisations via: FTIR, SEM, XRD and XRF analysis. Results obtained for the samples calcined at the different temperatures showed notable differences in the physicochemical properties of the samples. The transformation of the SS samples after calcination at different temperatures revealed the changes in the structural, morphological, and chemical composition of the samples. This analysis provides an insight into the alteration /changes in crystallinity, surface morphology, elemental composition and surface functional groups of SS derivatives as influenced by the calcination process

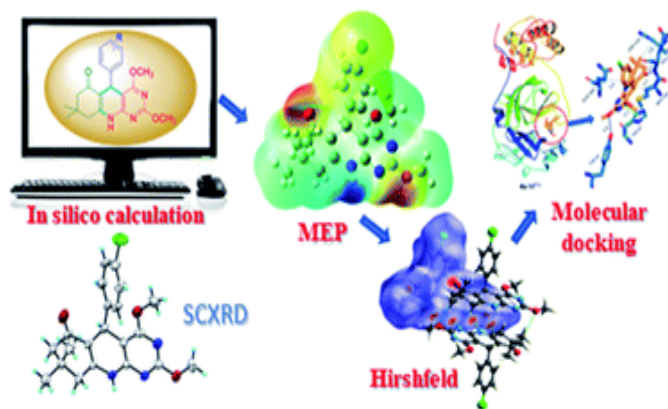
Keywords: Temperature, calcination, snailshell, properties**PHYTO-044:****PHYTOCHEMICAL AND ANTI-ANEMIC PROPERTIES OF THE METHANOL STEM BARK EXTRACT OF *LANEAE WELWITSCHII* (HIERN) ENGL. (ANACARDIACEAE) ON PHENYLHYDRAZINE INDUCED ANEMIC RATS**^{1*}Ezea SC, ²ONYEKA, CS, ³AYOGU O.U, ⁴Ugwoke CEC

Department of Pharmacognosy, University of Nigeria, Nsukka,

*Corresponding Author: samson.ezea@unn.edu.ng, 08034763088

Introduction: The plant *Lannea welwitschii* (Hiern) Engl. is used in folkloric medicine in treatment of hematological challenges.**Aim:** This study aims to determine the phytochemical constituent and anti-anemic potential of the methanol stem bark extract (MSBE) of *L. welwitschii* on Phenyl hydrazine induced anemic rats**Methodology:** The MSBE of *L. welwitschii* was obtained by cold maceration using 95% methanol. Quantitative and qualitative phytochemical screening of the extract were carried out using standard methods. Acute toxicity test was carried out using Lorke's method. Anti-anemia study was carried out on albino rats using Phenyl hydrazine induced model and the following parameters (Red Blood Cell count (RBC), White Blood Cell count (WBC), Packed Cell volume (PCV), Hemoglobin (Hb) and differential White Blood Cell count (DWBC) were assessed within twenty-one days. Statistical analysis of the result was done with one-way ANOVA and significance was at $P \leq 0.05$ **Results:** Phytochemical screening revealed alkaloids (1.89±0.02), Saponins (7.41±0.02), Terpenoids (1.32±0.00), flavonoids (4.59±0.09), tannins (13.40±0.46) and phenolics (47.05±0.10). The acute toxicity assessment showed no death at 5000mg/kg. The extract (400mg/kg, 200mg/kg and 100mg/kg) significantly ($P \leq 0.05$) increased the PCV, RBC and Hb after the treatment. The extract (400mg/kg) produced 41.00% (PCV), $10.66 \times 10^6 \mu\text{L}$ (RBC) and 8.60g/dl (Hb) compared to 18.25% (PCV), $6.65 \times 10^6 \mu\text{L}$ (RBC) and 6.15g/dl (Hb) produced by the untreated group.**Conclusion:** This study showed positive anti-anemic activity and justifies its folkloric use in treatment of anemia.**Keywords:** Phytochemical, Acute-toxicity, Anti-anemic, Phenyl hydrazine

IN SILICO STUDIES ON PHYTOCHEMICALS (ISSP)



ISSP-001:

INSILICO INVESTIGATION OF ANTISCHIZOPHRENIC ACTIVITY OF PHYTOCHEMICAL CONSTITUENTS OF *HYMENOCARDIA ACIDA* TUL. (PHYLLANTACEAE)^{1*}Danladi, S., ²Alhassan, A.M., ³Lawal, N.B., ⁴Ilyasu, S.^{1, 2, 3}Department of Pharmaceutical and Medicinal Chemistry, Bayero University, Kano,⁴Department of Pharmaceutics and Pharmaceutical Technology, Bayero University, Kano*Corresponding author: sdanladi.phc@buk.edu.ng, Phone: 08062228858**ABSTRACT**

Hymenocardia acida is a medicinal plant used in the treatment schizophrenia. Previous study has shown that *H.acida* possessed anti-schizophrenic activity. The pharmacological activity of this plant might be related to its phytochemical constituents. The aim of study was to investigate *insilico* anti-schizophrenic activity of the phytochemical compounds of *H.acida*. The phytochemical constituents previously isolated from *H.acida* were investigated for their anti-schizophrenic using *insilico* molecular docking studies. Sixteen compounds obtained from literature were docked against three receptors namely, D1 dopamine receptor (PDB I.D 7JOZ), D2 dopamine receptor PDB I.D 6CM4) and serotonin receptor 5HT1A (PDB I.D 7E2Y). The results obtained from molecular docking studies proved that phytochemical compounds present in *H.acida* have adequate affinity for both dopaminergic and serotonergic receptors. This study shows *H.acida* possesses anti-psychotic properties and its phytochemicals had good binding affinity to the respective dopaminergic and serotonergic receptors.

Keywords: *Insilico*, phytochemical, antischizophrenic activity

ISSP-002:

PHYTOCHEMICAL AND MOLECULAR DOCKING STUDIES OF ETHANOL EXTRACT OF *NEPETA CATARIA* ON THREE TARGETS ENZYMES OF COVID-19^{1*}Abdullahi, I., ²Hassan, H.S., ³Sani, Y.M., ⁴Oduma, S.E., ⁵Danmusa, U.M., ⁶Nuhu, A.M., ⁷Gidado, M., ⁸Olaiye, A.A.^{1,5}Department of Pharmaceutical and Medicinal Chemistry Kaduna State University, Kaduna^{2,3,8}Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria⁴Department of Pharmacognosy and Drug Development, Kaduna State University, Kaduna⁶Department of Pure and Applied Chemistry, Kaduna State University, Kaduna⁷Department of Applied Science, Kaduna Polytechnic, Kaduna*Corresponding author: idrisabdld@gmail.com, Phone: 08033543430**ABSTRACT**

Nepeta cataria (Lamiaceae) is an annual herb, commonly known as *catnip*, *catswort*, *catwort*, and *catmint*. This research was aimed to investigate phytochemical analysis of ethanol extract of *Nepeta cataria* aerial parts and molecular docking studies of isolated compounds on targets enzymes of COVID-19. The ethanol extract was subjected to partitioning and phytochemicals were quantified by Folin-Ciocalteu, aluminum chloride, and bromocresol methods respectively for the crude extract and partitioned fractions. The isolated bioactive metabolites were obtained by chromatographic techniques and characterized using UV, FTIR, and NMR analysis, and subjected to molecular docking on COVID-19 enzymes. The quantitative phytochemical result of crude ethanol extract are 90.0 mg/g, 110.0 mg/g, 80.0 mg/g, 92.0 mg/g and 98.0 mg/g for phenol, flavonoid, alkaloid, tannins and terpenes respectively. The column chromatography has afforded the isolation of two compounds. 2-(2,2-dihydroxypropoxy)-6,8-dimethyl-3-(((3S,4R,5R,6R)-4,5,6-trihydroxy-3-methyltetrahydro-2H-pyran-2-yl)oxy)-4H-chromene-4-one (N1) and 2-(3-hydroxy-5-methoxy-4-propoxyphenyl)-6,8-dimethyl-3-(((3S,5R,6R)-4,5,6-trihydroxy-3-methyltetrahydro-2H-pyran-2-yl)oxy)-4H-chromene-4-one. The results from molecular docking studies showed that the compounds exerted greater binding affinity on 7ed5 and 8okl with negative values of -7.5, -8.6, and -7.7, -7.2 than on 7lbr with a negative value of -7.0, -6.2. This is the first report of the isolation of these compounds from *N. cataria* and maybe the active principle in neutralizing the effect of enzymes and thereby disclosing the molecular evidence of *N. cataria* activity against COVID-19

Keywords: *Nepeta cataria*, phytochemical, molecular docking, COVID-19

ISSP-003:

SITE SPECIFIC MOLECULAR DOCKING AND IN VITRO STUDIES ON HUMAN (ADIPONECTIN AND LEPTIN) ENHANCED PERFORMANCE BY IDENTIFIED COMPOUNDS (FLAVONOIDS) OF MFLJ AND EAFH. AN APPROACH FOR ANTI-OBESITY THERAPEUTIC INTERVENTION^{1*}Idoko, A., ²Elijah, P.J., ³Uzoma, N.O., ⁴Onoyima, S.¹Department of Biochemistry, Caritas University, Amorji-Nike, Enugu, Nigeria^{2,3,4}Department of Biochemistry, Faculty of Biological Sciences, University of Nigeria, Nsukka, Nigeria

*Corresponding author: alexidoko@caritasuni.edu.ng, Phone: 08032354823

ABSTRACT

Adiponectin's and leptin's roles in obesity management are well reported to be associated with improvement of glucose and lipid metabolism, for healthy energy expenditure. The aim was to investigate the enhanced performance effects of flavonoids on adiponectin and leptin proteins as anti-obesity factors, through *in vitro* and molecular docking studies. HPLC analysis was used to characterize flavonoids in ethylacetate flavonoid-rich fraction of honey (EAFH) and methanol flavonoid-rich fraction of lime juice (MFLJ). AutoDock Vina software was used for the molecular docking. Binding affinities of atorvastatin and orlistat (-7.9 Kcal/mol and -7.4 Kcal/mol) to adiponectin were stronger than those of flavonoids. Affinities to leptin (-6.2 Kcal/mol and -4.9 Kcal/mol) were weaker. Binding affinity (ΔG) value for quercetin (-8.4 Kcal/mol), p-coumarin (-8.0 Kcal/mol), and epigallocatechin (-7.4 Kcal/mol) ligands portrayed their proficiency as anti-obesity phytotherapy. In-vitro investigation showed improvements in lipid profile, leptin, insulin, and glucose concentrations of obese rats administered fresh lime juice and honey. The higher (ΔG) value of quercetin, p-coumarin, and epigallocatechin suggest their potential as anti-obesity drug targets on adiponectin and leptin, by exerting their antioxidant, glucose, and lipid metabolic effects on these proteins.

Keywords: Adiponectin, leptin, anti-obesity, epigallocatechin

ISSP-004:

SECONDARY METABOLITES FROM *GLOBIMETULA OREOPHILA* UNSNARL THE VOID IN TREATMENT OF MALARIA: A STUDY ON *PLASMODIUM FALCIPARUM* CDPK2, SERA5, AND DHFR-TS THROUGH MOLECULAR DOCKING ANALYSIS^{1*}Garba, D., ²Ali, B.H., ³Bawa, B., ⁴Abdullahi, M., ⁵Hamza, A.N., ⁶Sani, Y.M., ⁷Magaji, M.G., ⁸Abdullahi, M.I., ⁹Musa, A.M., ¹⁰Hassan, H.S.¹Department of Pharmaceutical and Medicinal Chemistry, University of Abuja, Abuja, Nigeria^{2, 4, 5, 6, 9, 10}Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University, Zaria, Nigeria³National Agency for Food and Drug Administration and Control, Gusau, Zamfara, Nigeria⁷Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria⁸Department of Pharmaceutical and Medicinal Chemistry, University of Abuja, Nigeria

*Corresponding author: dauda.garba@ymail.com, Phone: 07069064878

ABSTRACT

Antimalarial drug resistance is a major global issue due to its inception and dissemination. The search for natural products to develop new antimalarial drugs has been challenging. This study investigates the possible mechanism of action of the isolated compounds from *Globimetula oreophila* plant through *insilico* studies using the crystal structure of *P. falciparum* enzymes via; calcium-dependent protein kinase 2 (PfCDPK2), serine repeat antigen 5 (PfSERA5) and dihydrofolate reductase-thymidylate synthase (PfDHFR-TS). The interaction of compounds with the protease enzymes' active site was investigated using molecular docking. Methods such as ADMET and Molecular docking analysis. The results of molecular docking study, showed the interaction of individual compounds with residues at the active site and other sub-units that regulate the proteases' selectivity. In contrast to the native ligand (Lig0), which had binding energy of -4.1 Kcal/mol, compounds DG1-DG5 (Lig1-Lig5) exhibit binding energy that varies from -5.4 to -6.6 Kcal/mol for the SERA5 enzyme, compound DG1 had the lowest binding energy of -6.6 Kcal/mol with a better binding affinity. Compound DG4 had the lowest binding energy of -10.3 Kcal/mol compared to other ligands with PfDHFR, while compound DG1 had a lower

binding energy of -8.9 Kcal/mol with PfCDPK2. The inhibition of these enzymes by the isolated compounds could offer therapeutic benefits against *P. falciparum*. **Keywords:** *Globimetula oreophila*, molecular docking, *Plasmodium falciparum*

ISSP-005:

COMPARATIVE *IN SILICO* ANALYSIS OF THE TOXICITY PROFILE AND BINDING AFFINITY OF QUERCETIN AND DASATINIB TO LYN PROTEIN

*¹Abdullahi, M., ²Ndagi, U., ³Ibrahim, Z.G., ¹Jimoh, Y., ¹Musa, A.M., ¹Idris, A.

¹Department of Pharmaceutical and Medicinal Chemistry, Ahmadu Bello University Zaria, Nigeria

²Africa Centre of Excellence for Mycotoxin and Food Safety, Federal University of Technology, Minna, Nigeria

³Department of Clinical Pharmacology and Therapeutics, College of Medical Sciences, Abubakar Tafawa Balewa University, Bauchi, Nigeria

Corresponding author: maryambkif3@gmail.com Phone: 08037036680

ABSTRACT

The discovery of lyn kinase as the cause of aggressive behaviour in triple-negative breast cancer (TNBC) remains a cause of concern for people living with breast cancer and in drug development. Worldwide, medicinal plants are regarded as the mainstay of health maintenance and care. Quercetin, is a polyphenol that affects the human body in favourable ways, thereby leading to maintenance and improvement of human health. The aim was to provide detailed molecular impact of Quercetin on lyn protein as compared to dasatinib which is the native ligand on the protein (2ZVA). This study, employed molecular docking techniques as well as *in silico* methods of toxicity testing to comparatively study the binding affinity as well as toxicity of Quercetin as compared to the native ligand. The molecular docking analysis, revealed that Quercetin interacted with the residues at the active site responsible for modulating the specificity of the lyn protein. This is evident by hydrogen bonds, van der Waals, and other hydrophobic interactions. These findings can provide insights that will potentially serve as a baseline in the design of novel lyn inhibitors. It could also stimulate further research into multidimensional approaches to curb the influence of lyn protein in TNBC.

Keywords: Triple negative breast cancer, lyn kinase, Quercetin, molecular docking



POSTER PRESENTATION (PP)



PP-001:

PHARMACOGNOSTIC STANDARDIZATION AND DNA BARCODING OF LEAF OF *FICUS KAMERUNENSIS* WARB. (MORACEAE)*Shehu, H.M., Umar, H.D., Shehu, U.F., ²Abubakar, A.¹Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria,²Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria

*Corresponding author: jawharhs@gmail.com, Phone: 07038963486

ABSTRACT

Ficus kamerunensis has been used by traditional healers for the treatment of various ailments. Current research explores its macroscopic, microscopic, physicochemical, and molecular identification. The study aims to provide some pharmacognostic standards and develop a DNA barcode in establishing criterion for identity, quality and purity of leaf of *Ficus kamerunensis*. Pharmacognostic and physicochemical studies were carried out following standard procedures described by Kokate (1994), Evans (2009), WHO (2011). Molecular identification was carried out using rbcL gene PCR amplification and sequencing. The obtained sequence was compared in NCBI-BLAST with similar sequences and a novel sequence was deposited in the Gene bank. The results revealed a simple leaf with a glabrous texture, ovate in shape, acute apex and cordate base. Microscopic features include anomocytic stomata, prismatic calcium oxalate crystals. Mean stomatal number, stomatal index, palisade ratio, vein islet and vein-let termination number of 11.7, 12.76, 19.45, 9.4 and 10.3 mm⁻² respectively. Physicochemical parameters were moisture content, total, acid insoluble and water-soluble ash values of 4.22, 11.42, 4.33, 3.67 % respectively and 24.30 and 20.60 % for alcohol and water extractive values. Molecular phylogenetic tree constructed from results of BLAST showed a close relationship with *Ficus microcarpa*, *F. pumila*, *F. altissima*, *F. auriculata*, *F. hirta* and an accession number was obtained. Pharmacognostic evaluation and DNA barcoding revealed diagnostic features, offering a reliable means for its identification and setting a foundation for its standardized use in medicinal applications.

Keywords: *Ficus kamerunensis*, standardization, DNA-barcode

PP-002:

PHYTOCHEMICAL SCREENING, GC-MS CHARACTERIZATION AND ANTIOXIDANT ACTIVITY OF N-HEXANE FRACTION OF *Microtrichia perotitii*.DC¹*Nuhu, A.M., ²Istifanus, S.U., ³Idris, A.^{1,2}Department of Pure and Applied Chemistry, Kaduna State University.,³Department of Pharmaceutical and Medicinal Chemistry, Kaduna State University

*Corresponding author: amnuhu2006@gmail.com, Phone: 08033334307

ABSTRACT

Microtrichia perotitii shrub of the family Asteraceae, ethnomedicinal used for treatment of children's rashes, burns, wounds, jaundice, rheumatism & diarrhea. The aim of the study was to investigate the secondary metabolites of *Microtrichia perotitii* n-hexane fraction with a view to determine the antioxidant activity. The ethanol crude extract was subjected to solvent-solvent extraction using n-hexane. The n-hexane fraction was subjected to phytochemical, spectroscopic analysis using UV, FTIR & GC-MS and DPPH and NO scavenging analysis. Phytochemical screening revealed the presence of alkaloids, tannins, saponins, phenols, steroids, and flavonoids. The FTIR revealed functional group (O-H), (C=O) and (C-H), GC-MS showed Pentadecanoic acid, 14-methyl-, methyl ester having the highest abundance and DPPH & NO scavenging exhibited activity with an IC₅₀ value of 4.61 mg/ml, 3.10 mg. The phytochemical compounds present in the plant could be responsible for the antioxidant property of the plant.

Keywords: Phytochemical, GC-MS, DPPH, nitric oxide.

PP-003:

EVALUATION OF ALLERGENICITY, TOXICITY AND PHYTOCHEMICAL ANALYSIS OF METHANOLIC LEAF EXTRACT OF *JATROPHA TANJORENSIS*^{1*}Ayagwa, A.T., ²Vantsawa, P.A., ³Abdulsalami, M.S., ⁴Dan, V.M.Y., ⁵Egbe, N.E., ⁶Comfort, S.Y., ⁷Enoh, E.E.¹⁻⁵Department of Biological Sciences, Nigerian Defence Academy, Kaduna, Nigeria⁶Department of Botany, Adamawa State University, Mubi, Nigeria⁷National Institute for Trypanosomiasis Research, Kaduna, Nigeria

*Corresponding author: ayagwaandrew1@gmail.com, Phone: 08028088723

ABSTRACT

Allergy is a widespread global public health problem which can lead to serious complications. Over 20% of the world population suffers from IgE mediated allergic diseases which mostly lead to allergic inflammation of the affected skin resulting in acute or chronic nociception and pain. Most cases of allergy originate from plants; trichomes of *J. tanjorensis* cause immune system overreaction on the skin characterized by itching and swelling. The plant leaves are widely consumed in Nigerian local communities as soup and as a tonic. This research aimed at assessment of photochemicals, toxicity of methanolic leaf extract of *J. tanjorensis* and the biomolecules accountable for allergenic property of the plant. Fresh leaves of *J. tanjorensis* were collected from household gardens within Kaduna metropolis, Nigeria. The sample was air dried, ground and subjected to methanolic extraction using 99% methanol. The extract was used for phytochemical analysis, acute toxicity test and evaluation of allergenic biomolecules using Gas Chromatography-Mass Spectrometry (GC-MS). Phytochemical screening revealed high concentration of alkaloids and flavonoids. The toxicity study recorded neither mortality nor any signs of behavioral changes after oral administration of *J. tanjorensis* extract at experimental doses of 10, 100, 1000, 1600, 2900 and 5000 mg/kg b.w. GC-MS revealed essentially the presence of 9,12-octadecadienoic acid (0.65%), n-hexadecanoic acid (8.69%), and methotrexate (0.89%). The result infers that the methanolic leaf extract of *Jatropha tanjorensis* is non toxic and the allergenic property is due to the presence of 9,12-octadecadienoic acid, n-hexadecanoic acid and methotrexate.

Keywords: *Jatropha tanjorensis*, allergy, toxicity, GC-MS

PP-004:

PHYTOCHEMICAL EVALUATION AND HERBAL TEA FORMULATIONS OF THE STEM BARK OF *ANOGEISSUS LEIOCARPUS* (DC) GUILL. & PERR. (COMBRETACEAE)

*Ibrahim, G., Ibrahim, H., Danmalam, H.U., Shehu, U.F., Shehu, S.

Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria,

*Corresponding author: garzakyfir@gmail.com, Phone: 08064416065

ABSTRACT

Anogeissus leiocarpus (Combretaceae) possesses antibacterial, antifungal, among other biological activities. It is used by the Hausa tribe of Northern Nigeria traditionally, for the management of respiratory tract infections and has subsequently been used during the COVID-19 pandemic. The study was aimed at phytochemical screening and formulation of tea from the powdered stem bark of *A. leiocarpus*. Phytochemical screening of the aqueous stem bark extract was carried out; loose and bagged teas of the powdered stem bark were formulated by using standard procedures. Acute toxicity study was conducted by using the OECD guidelines, 425, in Wistar rats per orally. Phytochemical screening on the extract indicated the presence of alkaloids, saponins, flavonoids, tannins, steroids and triterpenes. Quantitatively, it was found that, tannins had the highest concentration (0.117 mg/ml) whereas saponins had the least concentration (0.030 mg/ml). The tea formulated was of high standards. Acute toxicity value was found to be greater than 5000 mg/kg body weight in Wistar rats per orally. The aqueous stem bark extract of *A. leiocarpus* was found to be rich in phytochemicals; the stem bark powder was formulated into loose and bagged teas. It was found to have wide margin of safety.

Keywords: *Anogeissus leiocarpus*, phytochemicals, herbal-tea

PP-005:

EVALUATION OF THE ANTIHYPERGLYCEMIC EFFECT OF *OCHNA MEMBRANACEA*
(OLIV) OCHNACEAE USING *DROSOPHILA MELANOGASTER*

*Ibrahim, Z.Y., Malami, I., Lawal, M., Ahmed, A.H., Muhammad, M.

Department of Pharmacognosy and Ethnopharmacy, Usmanu Danfodiyo University Sokoto,

*Corresponding author: zakiyyah.yakubu@udusok.edu.ng, Phone: 08039297353

ABSTRACT

Introduction: Diabetes mellitus is a chronic metabolic disease characterized by elevated blood glucose level, which may lead to serious organ damages and death. Plants, due to their high composition of bioactive constituents are utilized ethnomedicinally for treating such ailments. *Ochna membranacea* is a plant with high phenolics content used traditionally against illnesses with no scientific validation. This study aimed to establish the TLC profile and antihyperglycemic property of the residual fraction from methanol extract of *Ochna membranacea* leaves in high sucrose diet (HSD)-induced *Drosophila melanogaster* flies. Residual aqueous fraction from the crude methanol extract of *Ochna membranacea* leaves was used for the study. TLC profile was established using standard procedures. For the antihyperglycemic studies, doses of 200 and 100 mg of the sample were used with 16 mg metformin as the positive control. The locomotor assay was established using the Negative Geotaxis Assay method. Trinder method was used for quantitative determination of glucose level in HSD fed *drosophila* flies. Results were analyzed using GraphPad prism 10.1. TLC profiling revealed the presence of yellow colored spots that fluoresce under UV, indicative of flavonoids. HSD-fed flies from both treatment groups showed a slight decrease in levels of glucose concentration (148.1 and 136.7 mg/ml for 100 and 200 mg respectively), at $p < 0.05$, with the lower dose having a slightly higher decrease than that of the metformin group (145.57 mg/ml). The findings suggest that the aqueous fraction of *Ochna membranacea* contains polar constituents which ameliorate HSD-induced diabetes mellitus.

Keywords: Antihyperglycemic, *Drosophila*, *membranacea*, TLC

PP-006:

STUDIES ON THE QUALITATIVE AND QUANTITATIVE PHYTOCHEMICAL
CONSTITUENTS OF ETHANOLIC EXTRACTS OF *ADANSONIA DIGITATA*, *MORINDA*
CITRIFOLIA AND *TAMARINDUS INDICA*¹Hamza, M.M., ²Umar, Y.A., ³Abdulsalami, M.S., ⁴Onwumere, G.B., ⁵Abdullahi, I., ⁶Shehu, M.M.¹Department of Microbiology, Kaduna State University, Kaduna²⁻⁴Department of Biological Sciences, Nigerian Defence Academy, Kaduna,⁵Department of Pharmaceuticals and Medicinal Chemistry, Kaduna State University, Kaduna,⁶Department of Biological Sciences, Federal University Gashua, Yobe State

*Corresponding author: mareeya.hamza@gmail.com, Phone: +2348068977673

ABSTRACT

Plants have been used traditionally for the treatment of many ailments for decades and most new drugs now available have been generated from natural products derived from plants. The aim of this study is to conduct phytochemical analysis of the ethanolic crude extract of *Adansonia digitata*, *Morinda citrifolia* and *Tamarindus indica*. Extraction of the plant materials was done via the maceration technique using 70% ethanol as solvent. Standard techniques were used to qualitatively and quantitatively detect the presence as well as concentrations of secondary metabolites using spectrophotometric methods. The results of the qualitative phytochemical screening indicated the presence of; alkaloids, cardiac glycosides, saponins, phenolic compounds, tannins, steroids, flavonoids, terpenoids and reducing sugars. Anthraquinones were detected in *A. digitata* only, while coumarins were absent in *A. digitata* but present in both *M. citrifolia* and *T. indica*. The quantitative analysis revealed a significant difference ($p < 0.05$) in the phytochemical composition of the studied plant extracts. The alkaloid, flavonoid, saponins and triterpenes content was significantly higher in *T. indica*, followed by *A. digitata* and *M. citrifolia*. Conversely, both tannins and phenol composition were significantly higher ($P < 0.05$) in *A. digitata* followed by *T. indica* and *M. citrifolia*. The outcomes of the phytochemical analysis of the studied plants shows their potential as excellent reservoirs of bioactive compounds which can be purified and used in various pharmacological and functional food applications.

Keywords: Phytochemical, ethanol, alkaloids, concentration

PP-007

THE POTENTIAL OF COMPOUNDS FROM PILOSTIGMA THONNINGII LEAF EXTRACTS IN INHIBITING PROGESTERONE RECEPTOR: A MOLECULAR DOCKING APPROACH TO UTERINE FIBROID THERAPY.

*Ogah, C.F., Anyanwu, G.O., Gyebi, G.A.

¹Department of Biochemistry, Bingham University,
Department of Biochemistry, Bingham University,
Department of Biochemistry, Bingham University*Corresponding author: cegwuonwu25@gmail.com, Phone: +2348034057434**ABSTRACT**

The progesterone receptor (PR) is key player in fibroid development, making it a valuable target for new treatments. The study aims to evaluate the potential of compounds from *Pilostigma thonningii* leaf extract in inhibiting the PR through molecular docking techniques. GC-MS equipment coupled with a library software was used to analyze the n-hexane fraction of the plant extract. Molecular docking was done with AutoDock VINA in PyRx0.8 and the molecular interactions viewed with Discovery Studio Visualizer version 16. Phthalic acid ethyl tetradecyl ester exhibited the highest binding energy (-6.4 kcal/mol) when docked to the PR Ligand binding domain (LBD). It also interacted with similar amino acid residues and formed interactions with the catalytically important residues (Cys891 and Thr894), comparable to those observed with the ulipristal acetate reference inhibitor. These interactions suggest a potential inhibitory ability of the compound to the PR LBD, making it a promising candidate for uterine fibroid treatment.

Keywords: Fibroid, molecular docking, GCMS, inhibitor

PP-008:

THE AQUEOUS WHOLE FRUIT EXTRACT OF *AZANZA GARCKEANA* (GORON TULA) ALLEVIATES CASTOR OIL INDUCED DIARRHOEA IN MICE.

*Bello, R., Abbas, M., Hassan, F.I., Adamu, F.K.

Department of Pharmacology and Therapeutics, Ahmadu Bello University,
Faculty of Pharmaceutical Sciences, Ahmadu Bello University*Corresponding author: ramatu42@yahoo.com, Phone: 08069518579**ABSTRACT**

Diarrheal disease remains a public health concern in developing nations including Nigeria. Current antidiarrheals are associated with adverse effects, contraindications and risk of resistance. In order to alleviate this disease, a wide range of medicinal plants have been explored of which *Azanza garckeana* is one of them. The aim was to investigate antidiarrheal potential of the methanolic fruit extract of *Azanza garckeana* (MEAG) in mice. The dried fruit was extracted with 70 % w/v Methanol for 72 h. Phytochemical screening was conducted per standard procedures. The oral acute toxicity study was carried out in mice using OECD guidelines. Varying doses of the methanolic fruit extract of *A. garckeana* (125, 250, & 500 mg/kg) were tested for antidiarrheal activity using castor oil-induced diarrhea in swiss albino mice. There were no visible signs of toxicity and mortality following a single oral administration of 5000 mg/kg. Phytochemical screening tests revealed the presence of alkaloids, saponins, flavonoids, terpenoids, phenols, and tannins. The MEAG extract significantly prolonged the onset of diarrhea and reduced the weight of wet faeces at 500 mg/kg ($P < 0.05$) in the castor oil-induced diarrheal model. The activity of the extract was evidenced by the absence of characteristic diarrheal droppings following treatment with varying doses of methanolic fruit extract of *Azanza garckeana*. The methanolic fruit extract of *A. garckeana* demonstrated antidiarrheal potential against castor oil induced diarrhea in mice.

Keywords: *Azanza garckeana*, diarrhoea, castor-oil

PP-009:

ANTIBACTERIAL ACTIVITY OF THE LEAF EXTRACTS OF *STACHYTARPHETA ANGUSTIFOLIA* (MILL.) VAHL (VERBENACEAE) AGAINST METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA)*¹Samuel, A.A., ¹Temitayo, O.I., ²Godwin, A.O.A.¹Department of Pharmacognosy & Traditional Medicine, University of Jos²Department of Diagnostic Services, National Veterinary Research Institute, Vom, Nigeria*Corresponding author: akindelesamuel20@gmail.com

ABSTRACT

The increasing prevalence of Methicillin-resistant *Staphylococcus aureus* (MRSA) infections underscores the urgent need for novel antimicrobial agents. *Stachytarpheta angustifolia*, a medicinal plant traditionally used in folk medicine, offers potential as a source of bioactive compounds with antibacterial properties. This study aims to evaluate the antibacterial potential of various leaf extracts of *S. angustifolia* against MRSA strains. The phytochemical screening of the leaf extracts of *S. angustifolia* was carried out using standard methods. The leaf powder of the plant was extracted successively using petroleum ether, ethyl acetate, methanol, and water respectively. The antibacterial activity of the four extracts of *S. angustifolia* was assessed against five MRSA strains using the disc diffusion method. The MIC and MBC were also determined. The phytochemistry revealed the presence of alkaloids, flavonoids, saponins, steroids, and cardiac glycosides. The ethyl acetate extract demonstrated the highest antibacterial activity, with inhibition zones (14-22 mm) at 400 mg/ml and 200 mg/ml. The MIC values (25-100 mg/ml), indicates strong inhibitory effects. The methanol extract exhibited moderate activity, while the petroleum ether extract showed weak activity. The water extract displayed no antibacterial activity against MRSA strain. This study has shown that the ethyl acetate extract of the leaf of *S. angustifolia* contains bioactive compounds with significant antibacterial activity against MRSA. These findings suggest that ethyl acetate extract of *S. angustifolia* is a promising candidate for developing new antimicrobial agents.

Keywords: MRSA, *Stachytarpheta angustifolia*, phytochemical screening, antibacterial activity

PP-010:

ANTIBIOTICS SUSCEPTIBILITY PATTERN OF ENTEROBACTERIACEAE AND *PASTEURELLA* SPP ISOLATED FROM QUAIL EGG SHELLS IN SOME FARMS IN KADUNA STATE, NIGERIA^{1*}Matankari, R.M, ²Igba, P., ³Olayinka, B.O., ⁴Ehinmidu, J.O.^{1, 2}Department of Microbiology, Ave Maria University Piyanko, Nigeria,^{3, 4}Department of Pharmaceutical Microbiology, Ahmadu Bello University, Zaria Nigeria,*Corresponding author: asaba201@gmail.com, Phone: 08035047332

ABSTRACT

Food borne disease associated with inappropriately treated or untreated eggs is a major public health problem affecting developing and developed countries. This study was under taken to highlight the antimicrobials susceptibility testing of some bacteria associated with Quail eggs. The isolates were screened for their antimicrobial susceptibility to a panel of ten commonly prescribed antibiotics using disc diffusion method as described by clinical laboratory Standard institute. Conjugation studies experiments were also carried out on resistant bacteria using the method of MIC and Acridine orange dye was used during curing of trans-conjugants. 90.8% of the isolates were found to be resistant and 9.2% were sensitive to only imipinem. All of the isolates were consistently sensitive to imipinem but constantly resistance to erythromycin, Tetracycline, Trimethoprin, Penicillin and Bacitracin. The studies showed, out of 191 donor isolates only three (3) were observed to transfer their resistance factor. The increase in MIC of Ciprofloxacin against the recipient *Proteus mirabilis* from (3 µg/ml) to a (6 µg/ml), after conjugation, the phenotypic resistant factor of the donor bacterium had been transferred to it. The minimum inhibitory Concentration values of the tested trans-conjugants decreased significantly when compared with those obtained with the untreated trans-conjugants and multiple antibiotics resistance index of 0.3 and above is 96.8%. The fact that these antibiotics resistance bacteria can be transferred to humans is of public health concern. Therefore, stringent used of public health regulations for cleaning eggs before retailing is advocated.

Keywords: Enterobacteriaceae, pasteurella, quail egg

PP-011:

PHYTOCHEMICAL AND ANTIMICROBIAL STUDIES OF n-HEXANE EXTRACT OF THE LEAF OF *BOSWELLIA DALZIELII* HUTCH (BRUSERACEAE)¹*AbdulAziz, Z.A., ²Aminu, A.K., ²Danmalam, U.H.¹ Department of Pharmaceutical Microbiology, Ahmadu Bello University, Zaria² Department of Pharmacognosy and Drug Development, Ahmadu Bello University, Zaria*Corresponding author: zubaydaabul@gmail.com Phone: 0803 286 1397**ABSTRACT**

The importance of herbal medicine has gained much attention globally in recent times. The ever-increasing rate of bacterial resistance have raised concerns about the therapeutic failure of antibiotics. Plants possess important source of phytoconstituents that exhibit significant biological activities and have been used in the treatment of many illnesses. This study investigated the phytochemical and antibacterial properties of the leaf of *Boswellia dalzielii*. The leaf of *B. dalzielii* was extracted with n-hexane by method of Soxhlet extraction, phytochemical evaluation was carried out using standard method and the antibacterial assessment was evaluated using agar well diffusion method. The percentage yield of the essential oil obtained was 5.08 % the chemical evaluation of the oily extract gives standards such as acid value (182.33 mg/g), saponification value (1220.18 mg/g), iodine value (22.21 mg/g), and ester value (1037 mg/g). The gas chromatography/mass spectrometry (GC-MS) analysis revealed the presence of thirty-nine compounds with 9,12-octadecanoic acid, 17-pentatriacontene, squalene, n-hexa-decanoic acid and oleic acid as major components. The antimicrobial study showed that the n-hexane extract has significant effect on both Gram-positive and Gram-negative bacteria with MIC value of 50 mg/ml and MBC of 100 mg/ml. Findings from this study showed that *Boswellia dalzielii* leaves have antibacterial activity against the test bacteria, justifying its use traditionally in the treatment of infections.

Keywords: *Boswellia dalzielii*, antibacterial, phytochemical analysis

PHCOL-027

EXPLORING THE ANTISNAKE VENOM ACTIVITY OF *Zingiberofficinale*
AGAINST *NAJA NIGRICOLLIS* VENOM* Amina Jega Yusuf^{1,2,3}, Nasir Ibrahim¹, Musa Ismail Abdullahi¹, Hajara Adamu Wasagu^{1,4}, Mustapha Salihu¹¹Department of Pharmaceutical and Medicinal Chemistry, Faculty of Pharmaceutical Sciences, Usmanu Danfodiyo University, P.M.B, 2346, Sokoto, Nigeria.²Center for Advanced Medical Research and Training, Usmanu Danfodiyo University, P.M.B, 2346, Sokoto, Nigeria.³One Health Institute, Usmanu Danfodiyo University, P.M.B, 2346, Sokoto, Nigeria.⁴Department of Biology, Shehu Shagari College of Education, Sokoto, NigeriaCorrespondence; 08036386793, samynajega@gmail.com**Abstract**

Introduction: Snakebite envenomation remains a significant medical challenge, particularly in tropical and subtropical regions. **Aim:** The present study investigated the antisnake venom activity of *Zingiberofficinale* (ginger) against *Najanigracollis* venom. **Methodology:** The median lethal dose was determined using Lorke's method while the antisnake venom studies was evaluated using *in vivo* and *ex vivo* studies in Mice. **Result:** The median lethal dose (LD₅₀) of the methanol extract (ME) of the plant was estimated to be 1709.9 mg/kg, *i.p.* which indicates that the extract is toxic. No protection to mice against the venom was observed in the *in vivo* studies but ME was able to prolong the time of death with mean survival time ranging from 2.01 – 2.83 hours. In terms of *ex vivo* of studies, ME was able to significantly ($p < 0.05$) detoxify the *N. nigracollis* venom by 80 % at the graded doses (100, 200 and 400 mg/kg); standard Antisnake venom offered 100 % protection to mice. **Conclusion:** In conclusion, the findings suggest that *Z.officinale* contains bioactive compounds with significant antisnake venom activity, providing a foundation for the development of novel snakebite envenomation therapies.

Keywords: *Zingiberofficinale*, antisnake venom, toxicity, *in vivo*, *in vitro*

PHYTO-047

QUALITATIVE AND QUANTITATIVE PHYTOCHEMICAL CONSTITUENTS AND
ELECTROLYTE COMPOSITION OF BRAGG APPLE CIDER VINEGAR (ACV)Abdulrauf, R. A¹, Dawud, F. A¹, Umar, I. A² and Abdulazeez, J¹.

1. Department of Human Physiology, Faculty of Basic Medical Sciences, College of Medical sciences, Ahmadu Bello University, Zaria.
2. Department of Biochemistry, Faculty of Life Sciences Ahmadu Bello University, Zaria.

Corresponding Author: E-mail- oluwakemi2016@gmail.com; Phone number: 07069197661**ABSTRACT**

Introduction: Apple cider vinegar is used to promote good health and has a long history in alternative medicine. There has been an increase in the consumption of apple cider vinegar in recent years due to its noteworthy health benefits.

Aim: The aim of this study was to assess the qualitative and quantitative phytochemical constituents and electrolyte composition of Bragg Apple Cider Vinegar (ACV).

Method: 5ml of Bragg apple cider vinegar was subjected to qualitative and quantitative phytochemical screening using standard protocols to determine the presence or absence of major phytochemicals and total phenol, alkaloid, flavonoid, tannin and saponin contents. Electrolyte content of Bragg ACV was assessed using Atomic Absorption Spectrophotometer (AAS).

Results: It was observed that Bragg ACV contained flavonoids, phenols, tannins, saponins and alkaloid while anthraquinones, terpenoids, cardiac glycoside, carbohydrates and steroids were absent in ACV. Apple cider vinegar contained phenols 54.82 mg/g gallic acid, flavonoids 44.04 mg/g quercetin, alkaloids 5.32 mg/g atropine, saponin 6.54 mg/g diosgenin, tannin 3.56 mg/g gallic acid. Potassium concentration was the highest of all the electrolytes (990mg/L), followed by Sodium (22.6mg/L), Calcium (5.772mg/L), Magnesium (2.982 mg/L), Iron (1.265mg/L), Zinc (0.185mg/L), Cobalt (0.149mg/L) and Copper (0.082mg/L).

KEYWORDS: Apple Cider Vinegar, Phytochemical, Qualitative, Quantitative, Electrolyte