



PRELIMINARY SURVEY VISIT

AREA V RESEARCH

B. FUNDING AND OTHER RESOURCES

B.2. List of the Linkages/ Networking with Research funding Agencies



LIST OF INTERNATIONAL HIGHER EDUCATION AND RESEARCH INSTITUTIONS AS LINKAGES OF THE UNIVERSITY OF SOUTHERN MINDANAO

Institution	Country	Linkage	Year	Nature of Collaboration	What was done so far/ remarks	Contact Person/ Contact Details
Maejo University, Chiang Mai	Thailand	Education and Research	2022	Partnership/ collaboration	New MOU	
Universitas Gadjah Mada (UGM)	Indonesia	Education and Research	2022	Partnership/ collaboration	New MOU	
Daegu Health College	South Korea	Education and Research on Health	2022	Partnership/ collaboration	New MOU	National Institute for International Education(NIIED) webmaster@studyinkorea.go.kr
British Council	United Kingdom	Cooperative Education/ Faculty Training	2021 to present	Partnership/ collaboration	<ul style="list-style-type: none"> Trained 3 USM faculty members as EME Master Trainers USM received funding from the British Council (P132,000.00) 	Kris Anne Cortez Programme Officer, Education British Council 7/F The Curve 32nd Street corner 3rd Avenue Bonifacio Global City, Taguig City 1635 Philippines krisanne.cortez@britishcouncil.org.ph
Ajeenkya DY Patil University	India	Education and Research	2021 to present	Partnership/ collaboration	<ul style="list-style-type: none"> Conducted joint research international conference with USM faculty as resource speakers 	Dr. Vijay Kulkarni, Professor , HOD, Centre for Research, Member Doctoral Research Committee (DRC- ADYPU), Conference Chair , International Conference - 6 , 7 & 8 Oct 2021 Ajeenkya DY Patil University, D Y Patil Knowledge City, Charholi BK,

Institution	Country	Linkage	Year	Nature of Collaboration	What was done so far/ remarks	Contact Person/ Contact Details
						Via Lohegaon, Pune , Maharashtra, India www.adypu.edu.in What's app : +919373919926, +919284594473, www.adypu.edu.in vijay.kulkarni@adypu.edu.in
Universitas Muhammadiyah Sidoarjo	Indonesia	Education and Research	2017 to present	Partnership/ collaboration	<ul style="list-style-type: none"> No activity as of this time 	Office of International Affairs by email: iro@umsida.ac.id
Sultan Syarif Kasim State Islamic University of Raiu	Indonesia	Education and Research	2018 to present	Partnership/ collaboration	<ul style="list-style-type: none"> No activity as of this time 	Sultan Syarif Kasim State Islamic University Jl. Subrantas Km. 15, Pekanbaru, 28293 Tel: 0761-562223 Email: humas@uin-suska.ac.id
Shu-Te University	Taiwan	Education and Research	2017 to present	Partnership/ collaboration	<ul style="list-style-type: none"> No activity as of this time 	Contact : Office of International and Cross-Strait Affairs Tel : +886-7-6158000 ext.1607,1609,1610,1615 Email : oica@stu.edu.tw Address : No.59, Hengshan Rd., Yanchao Dist., Kaohsiung City,82445 Taiwan (R.O.C.)
Faculty of Agriculture, Khon Kaen University	Thailand	Education and Research	2015 to present	Partnership/ collaboration	<ul style="list-style-type: none"> Khon Kaen University sent 2 students for internship in the USM in 2015 	Darunee Jothityangkoon darcho@kku.ac.th Assoc. Dean for Planning and Quality Improvement Faculty of Agriculture, Khon Kaen University, Khon Kaen, 40002, Thailand Tel.: 66-4320-2360

Institution	Country	Linkage	Year	Nature of Collaboration	What was done so far/ remarks	Contact Person/ Contact Details
						Fax.: 66-4320-2361
Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)	France	Research/ Faculty Training	2016 to 2020	Partnership/ collaboration	<ul style="list-style-type: none"> One faculty of USM was trained by CIRAD on somatic embryogenesis of rubber. DOST-PCAARRD funded the training, CIRAD provided expertise. 	
Association of Universities of Asia and the Pacific (AUAP)	Asia Pacific Region	Education, Research, Inter-university cooperation	2017 to present	Membership	<ul style="list-style-type: none"> USM is an active member of AUAP. 	<p>Supaporn Chuangchid Executive Secretary Association of Universities of Asia and the Pacific (AUAP) Suranaree University of Technology Academic Building 2, 111 University Avenue Suranaree District. Muang, Nakhon Ratchasima 30000, Thailand</p> <p>Email: auapmembersevents@g.sut.ac.th Phone: +66 857687474</p>
Chulalongkorn University	Thailand	Education and Research	2014 to present	Partnership/ collaboration	<ul style="list-style-type: none"> Chulalongkorn University provided training to one faculty of USM under the Chemistry Department. 	Dr. Azhar Bin Ariffin Halal Science Center Chulalongkorn University azhar@halalcouncil.org
University of California – Davis	USA	Education and Research	2015 to present	Partnership/ collaboration	<ul style="list-style-type: none"> UC-Davis researchers provided lecture to USM. 	<p>Jim Hill jehill@ucdavis.edu UC Davis</p>

XII. INTERNATIONAL LINKAGES

No.	A. MOAS/MOUS	Agencies Involved (USM with.....)	Nature of Linkages	Ongoing/Completed Projects/Activities
5	MOU	The Halal Science Center Chulalongkorn University, Thailand	Academic Cooperation through research & study	Advancement of learning through promotion of cooperation, international understanding & goodwill; exchange program - Dec. 28, 2014 - Good for 5 years
6	MOU	National Taiwan University of Science and Technology	Collaboration & cooperation	Exchange of best practices or academic matters; sharing of research outputs; exchange of faculty, students/scholars; Enhance the degree of Cooperation and Collaboration. - 2017
7	MOU	Universitas Muhammadiyah Sidoarjo (UMSIDA), Indonesia	Cooperation communicative and cooperative partnership	Reaching mutual partnership, promoting scholar and student exchanges, as well as sharing of Information and materials related to academic Purposes. - January 11, 2017
8	MOU	Universitas Muhammadiyah Gresik, Indonesia	Mutual partnership	Reaching mutual partnership, promoting scholar and student, exchanges, as well as sharing of information and materials related to academic purposes; cooperate on certain programs
9	MOU	Faculty of Agriculture, Khon Kaen University Nai-Muang Khon Kaen 40002, Thailand	Academic exchange & cooperative education & research	Develop academic exchange & cooperative education & research;

				Promote international academic cooperation <ul style="list-style-type: none"> - May 15, 2015 - 5 years
10	MOU	Australian Centre for International Agricultural Research (ACIAR)	Partnership in Agricultural Research Contractual Agreement	Develop future research projects esp related to agriculture <ul style="list-style-type: none"> - In force until terminated in writing by either party - May 10, 2015
11	MOU	Shu-Te University (STU), Taiwan	Partnership Cooperation & collaboration	Exchange of faculty members and students for lectures, seminars, discussions and cultural activities; organization & participation in joint academic activities such as conference, workshops, publications and seminars; joint collaboration; joint research; cooperation & collaboration <ul style="list-style-type: none"> - June 15, 2015
12	MOA	Fundacion Accion Contra el Hambre (ACF International- Philippine Mission)	Internship	Student internship program <ul style="list-style-type: none"> - 160 hours (December 2014- January 2015)
13	MOU	Sultan Syarif Kasim State Islamic University of Riau, Indonesia	Mutual cooperation in education & training	Advancement of knowledge and intellectual development; bilateral cooperation in the field of higher education, research and training; Agreement of Scholarly Exchange and Collaboration <ul style="list-style-type: none"> - February 9, 2014 - 5 years

NATIONAL/LOCAL LINKAGES

No.	A. MOAS/MOUS	Agencies Involved (USM with....)	Nature of Linkages	Ongoing/Completed Projects/Activities
1	MOA	National Academy of Science and Technology, Philippines (NAST PHL)	Collaboration	Project on Capability-Building & Sustainable Biotechnology Information, Education & Communication for DOST & LGU Key Personnel (DOST-Grants-In-Aid Program) - September 2, 2014 to December 31, 2014
2	MOA	DA-BAR DA-ATI DA-RFU XII DOST XII DENR XII NEDA XII MSU General Santos City MSU Maguindanao SKPSC PhilRice – Midsayap SCC LGU South Cotabato LGU Sarangani LGU North Cotabato CCSPC NIA XII MBRLC PCAARD	Collaboration	Engage in research & development through acceleration, generation, verification, utilization & commercialization of technologies in Agriculture, Forestry, Environmental & Natural resources (AFNR) sectors; Management of the regional S & T consortium (Cotabato Agriculture & Resources Research, Development Consortium (CARRDEC) - December 29, 2010 10 years

3	MOU	Asian Hybrid Seed Technologies, Inc.	Research Collaboration	<p>Technology improvement by AHSTI to produce excellent & high yielding corn;</p> <p>Utilization of Biotech Services - August 3, 2015 1 year</p>
4	MOU	Jay Lloyd R. Mearns	Transfer of technology	<p>Transfer of Technology (as part of USM extension function, production of meriplants for tissue culture activities collaboration) - March 3, 2015 - 1 year</p>

14	MOU	Tuladan Development Center Incorporated (TDCI)	Collaborators	Supporting the establishment and operation of livelihood development program in the community.
15	MOA	Hon. Raymundo Gracia, Barangay Captain Barangay Dagupan	Partnership	Partnership in the field of SMAW (Shielded Metal Arc Welding), and Skills Training for Community development.
16	MOU	Isabela State University	Partnership	To work and collaborate together as partners in the areas of research, instruction, resource management, faculty exchange.
17	MOA	Department of Agrarian Reform Provincial Office- Sultan Kudarat (DARPO-SK)	Contracting Institution	Technology trainings for Cacao, Rubber and Coffee sub projects.
18	MOA	Department of Agriculture- Regional Field Office XI (DA-RFO XI)	Facilitator	Procurement of the 2,000 Certified OPV White Corn Seeds at 20 kg./bag in support to 2016 OPV Bufferstocking Program.
19	MOU	Department of Agriculture Regional Office XII (DA-RFO XII)	Partnership	DA-RFO XII, USM and the PLGU affirmation of partnership
20	MOU	Bangko Sentral ng Pilipinas (BSP)	Collaboration	BSP Knowledge Resource Network
21	MOA	The Philippine Atmospheric, Geophysical and Astronomical Services Administration, University of Southern Mindanao, Provincial Government of Cotabato, Municipal Government of Arakan, City Government of Kidapawan	Collaboration	Climate Forecast and Extension Advisory (CLEA)
22	MOA	Philippine Crop Insurance Corporation (PCIC) and USM- RSPP Special Project Under CHED-NAFES	Partnership	National Government's Food Security and poverty Reduction Programs

23	MOA	Al-Mujahidun Agro Resources and Development, INC. (AMARDI)	Collaborators	Collaboration on Learning and Building Capacity
24	MOA	Cotabato Agriculture, Aquatic and Natural Resources Research and Development Consortium (CAARRDEC)	Join Agreement	Consortium- the exclusive promotion of Science and Technology applications in the region for Agriculture, Aquatic, Forestry and Natural Resources sector.
25	MOA	DepEd USM	Agreement	DepEd Teachers' Competency Enhancement Program
26	MOA	DepEd TESD A DTI DOLE Office of Provincial Agriculture DOST SUCs HEIs Department of Tourism USM CFCS T NDMC SCC SBC Private Industries Don Bosco Foundation Energy Development Corporation DOLE-STANFILCO DXND, Notre Dame Broadcasting Corporation	Collaboration	Improving mechanisms and systems in the implementation of SHS Program by supporting a strategic Modelling scheme SY 2014-2015 and early implementation on SY 2015-2016 in preparation for the full implementation on SY 2016-2017.

27	MOA	DSW D USM	Partnership	DSWD-USM Partnership Training Project.
28	MOA	East West Rural Bank, Inc.	Agreement	Payroll Deduction Agreement
29	MOA	South ern Philip pines Agri- Busin ess and Marin e and Aquat ic Schoo l of Tech nolog y USM	Collaboration	Cater the educational needs of the target areas specifically in the Disciplines of agriculture and ensure quality and relevance in offering the identified graduate programs
30	MOA	Women Indigenous Focus for Enhancement (WIFE), Inc. USM	Partnership	University Extension Services Center support WIFE, Inc. through training programs and other extension activities.
31	MOU	Mindanao Development Authority (MinDA) USM	Partnership	Mindanao Knowledge Research and Policy Center (MKRPC) created as a mechanism to provide evidence-based policy analysis and advice to government, business, and general

				public.
32	MOA	CMU USM	Partnership	Support the noble endeavor of strengthening ties and promoting academic and cultural exchanges between the two universities.
33	MOU	USM Romeo J. Anuta	Adaptor	Capacity enhancement of small rubber farmers through adoption of improved latex stimulation, harvesting and processing technologies.
	MOA	ATI	Collaboration	
	MOU	Bangko Sentral ng Pilipinas	Collaboration	
	MOA	BA-BAR DA-ATI DA-Regional Field Unit XII Department of Science and Technology XII Department of Environment and Natural Resources-Region XII NEDA-Region XII USM MSU MSU-Gensan MSU- Maguindanao Sultan Kudarat Polytechnic State College Philippine Rice Research Institute- Midsayap Experimental Station Southern Christian College LGU South Cotabato LGU North Cotabato Cotabato City State Polytechnic College National Irrigation Administration-XII Mindanao Baptist Rural Learning Center		

		Philippine Council for Agriculture, Forestry and Natural Resources Research and Development		
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No.	B. Other Linkages	Agencies Involved	Nature of Linkages	Ongoing/Completed Projects/Activities
1	Agreement of Cooperation	University of California	Agreement	Development of basic scientific and technological research, and graduate and undergraduate education at the two institutions.
2	Framework Agreement for Scientific Cooperation	Centre de cooperation internationale en recherche agronomique pour le developpement (CIRAD)		
3	Letter of Understanding	Centre for Development Innovation (CDI)	Joint Collaboration	To join a short course in Lost Harvest and Wasted Food from CDI.
4	Grant Agreement	World Cocoa Foundation	Grant Funding	Proj. Establishment, Maintenance and Evaluation of Field Trials to test the Best Asia/ Pacific Regional Crosses
5	Letter of Agreement	International Rice Research Institute (IRRI)	Collaboration	Proj. Reducing Risk and Rice Livelihoods in Southeast Asia through the Consortium for unfavorable Rice Environments.
6	Memorandum of Partnership	Brokenshire Integrated Health Ministries, INC. (BIHMI), Kimadzil Integrated Health Association (KIHA), Ranzo Integrated Health Care Organization (RIHCO) USM Hospital	Partnership	Health Insurance Program (HEP)

MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

This Memorandum of Agreement is made and executed by and between:

The **DEPARTMENT OF HEALTH – CENTER FOR HEALTH DEVELOPMENT SOCCSKSARGEN Region** with office address at Purok San Miguel, Barangay Paraiso, Koronadal City, South Cotabato, represented by its Regional Director, **ARISTIDES CONCEPCION TAN, MD, MPH, CESO III**, and herein referred to as the **"DOH-XII"**;

-and-

The **DEPARTMENT OF SCIENCE AND TECHNOLOGY REGIONAL OFFICE NO. XII**, on behalf of the **HEALTH RESEARCH AND DEVELOPMENT CONSORTIUM IN REGION XII (HRDC-XII)**, with office at PNLSC Building, Brgy. Paraiso, Koronadal City, represented by its Regional Director, **ENGR. SAMMY P. MALAWAN, CESE**, and herein referred to as **"DOST-XII"**;

-and-

The **UNIVERSITY OF SOUTHERN MINDANAO**, a state university established through Presidential Decree (P.D.) No. 1312 with campus address at Bai Matabay Plang Avenue, Poblacion Kabacan, Cotabato Province, represented by its President, **JONALD L. PIMENTEL, PhD**, and herein referred to as **"USM"**;

-and-

DR. JOSEPHINE R. FLORES, Filipino, of legal age, with postal address at Kabacan, Cotabato Province, and herein referred to as **"PROJECT LEADER."**

WITNESSETH:

WHEREAS, DOH-XII is a government entity mandated to provide technical assistance, recommend research priorities aligned with the 2023-2028 Harmonized National Research and Development Agenda, and provide funding support for research initiatives from various stakeholders including academic institutions, local government units (LGUs), and government organizations (GOs);

WHEREAS, DOST-XII is responsible for providing central direction, leadership, and coordination of all scientific and technological efforts within the region;

WHEREAS, DOST-XII serves as the focal point and convener of the Health Research and Development Consortium (HRDC) in Region XII;

WHEREAS, HRDC-XII is a consortium of government and private institutions in Region XII focused on health and health-related research and development, with the vision of leading health research initiatives to address critical health issues and improve the quality of life in the region;


CHERRY PINK P. DROCERA, CPA
ACCOUNTANT III, DOH XII


WAHID A. LUCAS
OIC-ACCOUNTANT, DOST XII


ARISTIDES CONCEPCION TAN, MD, MPH, CESO III
Regional Director, DOH XII


ENGR. NORMA B. PAISM
Witness


DR. JOSEPHINE FLORES
Project Leader


JONALD L. PIMENTEL, PhD
President, USM


ENGR. SAMMY P. MALAWAN, CESE
Regional Director, DOST XII


ARISTIDES C. TAN, MD, MPH, CESO III
Regional Director, DOH XII

WHEREAS, in 2014, **DOH-XII** has allocated funds for the conduct of research projects, derived from 2% of its Maintenance & Other Operating Expenses (MOOE) budget, in accordance with DOH Department Memorandum Order No. 2013-0344 dated November 11, 2013;

WHEREAS, in 2014, **DOH-XII** and **DOST-XII** entered a Memorandum of Agreement wherein **DOH-XII** transferred Two Million Pesos (Php 2,000,000.00) to **DOST-XII** to fund health-related research proposals submitted by various researchers;

WHEREAS, as of August 15, 2024, One Million One Hundred Forty-Seven Thousand Two Hundred Pesos (Php 1,147,200.00) remains unexpended, which may be utilized to fund health-related research proposals;

WHEREAS, **USM** has submitted a project proposal to **HRDC-XII** titled "**Towards Zero Rabies: Assessment of the LGUs Compliance to the Anti-Rabies Act of 2007 (RA 9482) in SOCCSKSARGEN**" (Project);

WHEREAS, **USM**, through its **PROJECT LEADER**, possesses the necessary resources and expertise to successfully carry out the Project;

WHEREAS, after thorough evaluation, the **HRDC-XII** has approved the aforementioned Project;

WHEREAS, **DOST-XII** will release the necessary funds to **USM** for the implementation of the Project;

NOW, THEREFORE, for and in consideration of the foregoing terms and conditions, the parties hereto mutually agree as follows:

A. PROJECT OBJECTIVE

The Project aims to assess the rabies control program in SOCCSKSARGEN.

B. PROJECT OPERATION

The Project shall be carried out by USM through its PROJECT LEADER following the approved project proposal attached hereto as Annex "1," which forms an integral part of this Agreement. USM, through its PROJECT LEADER, shall be responsible for the entire duration of the project.

C. RESPONSIBILITIES OF DOH-XII


The DOH-XII shall:

1. Provide technical assistance to ensure the achievement of the project's objectives;
2. Monitor the progress of the project; and,
3. Utilize the research findings for policy formulation in support of health programs.

D. RESPONSIBILITIES OF DOST-XII/HRDC-XII

The DOST-XII/HRDC-XII shall:

1. Release the amount of **FIVE HUNDRED SEVENTY-EIGHT THOUSAND TWO HUNDRED PESOS (PHP 578,200.00)** to USM in accordance with the agreed-upon cost and payment terms outlined in Item F of this Agreement;


CHERRY PINK P. DIOGERA, CPA
ACCOUNTANT III, DOH XII


WAHID A. LUCAS
OIC-ACCOUNTANT, DOST XII


LEE DANIEL SUELAN, MD
Witness


ENGR. NORMA P. PAHM
Witness


DR. JOSEPHINE R. FLORES
Project Leader


DONALD PIMENTEL, PhD
President, USM


ENGR. SAMMY P. MALAWAN, CESE
Regional Director, DOST XII


ARISTIDES C. TAN, MD, MPH
Regional Director, DOH XII

ARISTIDES C. TAN, MD, MPH, CEBQ III
Regional Director, DOH XII

ENGR. SAMMY P. MALAWAN, CESE
Regional Director, DOST XII

JONALD P. PIMENTEL, PhD
President, USM

DR. JOSEPHINE R. FLORES
Project Leader

ENGR. NORMA P. PAHM
Witness

LAURENCE S. SUBLAN, MD
Witness

2. Provide technical and administrative support to the project, in collaboration with the relevant committees of the consortium, in line with the focal point functions for HRDC-XII;
3. Monitor and review the technical and financial status of the project in accordance with the terms set forth in Item I;
4. Report any unexpended balances immediately and/or utilize any remaining funds for project-related activities as mutually agreed upon by the parties;
5. Prepare and submit the final technical and audited financial reports to DOH-XII within one week following the receipt of the required documents from USM; and,
6. Assist DOH-XII and USM in the dissemination and translation of research findings into policies and/or actionable measures.

E. RESPONSIBILITIES OF USM

The USM shall:

1. Submit quarterly progress and financial report in three (3) hard copies and one (1) electronic copy to DOST-XII/HRDC-XII within one (1) month after each quarter of the implementation period;
2. Within 30 days after the project's completion, submit three (3) hard copies and one (1) electronic copy of the technical report and a paper in publishable format to DOST-XII/HRDC-XII;
3. Submit the Terminal Audited Financial Report to DOST-XII/HRDC-XII within 30 days after the completion of the project;
4. Upon receiving the approval notice, register the research project in the Philippine Health Research Registry (PHRR) at <http://registry.healthresearch.ph> and update project information as needed;
5. Ensure the project's continuity by notifying DOST-XII if any senior project personnel, including the Project Leader, will be absent for more than ten (10) consecutive working days. A responsible official must be designated to oversee the project in their absence;
6. Identify, protect, and manage all Intellectual Property (IP) generated from the project, and where applicable, pursue commercialization of R&D results in compliance with the Philippine Technology Transfer Act of 2009 (RA No. 10055) and its Implementing Rules and Regulations (IRR), along with other relevant laws; and,
7. Notify DOST-XII/HRDC-XII in a timely manner of any Intellectual Property Rights (IPR) applications, licenses, or assignments related to the project's results.

F. COSTS AND TERMS

DOH-XII, through DOST-XII, will provide financial assistance to this Agreement in the amount of **FIVE HUNDRED SEVENTY-EIGHT THOUSAND AND TWO HUNDRED PESOS (PHP 578,200.00)**.

DOST-XII/HRDC XII shall administer the release of the project funds to the USM upon the execution of this Agreement, following the specified schedule and contingent upon the submission of the following required outputs:


CHERRY PINK P. DIOCERA, CPA
ACCOUNTANT III, DOH XII


WAHID A. LUCAS
OIC-ACCOUNTANT, DOST XII

ACTIVITIES	EXPECTED OUTPUT	AMOUNT**
1 st Release	<ul style="list-style-type: none"> Signing of this Contract Submission of Progress Technical and Financial Reports 	50%
2 nd Release	<ul style="list-style-type: none"> Report on analysis of data Submission of the final technical report 	30%
3 rd Release	<ul style="list-style-type: none"> Submission of audited financial report and a publishable paper 	20%

G. FUND UTILIZATION

Funds released to the USM through its PROJECT LEADER shall be available for use within the approved project duration in accordance with the approved line-item budget (LIB) and subject to existing government accounting and auditing rules and regulations.

The realignment of Project funds shall only be limited to the following purposes:

1. Realignment within the approved line-item budget;
2. Transfer of funds from one expense item to another. This shall not exceed 33% of the approved expense item to be augmented; and
3. Creation of additional items

Budget reprogramming, realignment, or the creation of new expense items shall be governed by DOST Administrative Order (A.O.) No. 005, Series of 2013. Such requests must be made at least two (2) months prior to the conclusion of the project's current year and may not exceed three (3) times within each implementation year, unless exceptional circumstances warrant approval by DOST-XII.

H. OWNERSHIP AND UTILIZATION OF PROJECT RESULT/ INTELLECTUAL PROPERTY RIGHTS (IPR) PROTECTION

All intellectual properties arising from the PROJECT shall be governed by Republic Act No. 10055, also known as the Philippine Technology Transfer Act of 2009, and its Implementing Rules and Regulations, which are attached as Annex "5" and made an integral part of this Agreement.

I. PROJECT MONITORING

DOST-XII, in collaboration with the relevant committees of the consortium and DOH-XII, shall conduct periodic field visits and review technical progress reports submitted by USM to ensure compliance with Item F of this Agreement. They will also address any issues or challenges encountered during the Project's implementation.

The Commission on Audit shall exercise visitorial power pursuant to Section 29 of Presidential Decree No. 1445 insofar as the Project's outputs and performance under this Agreement are concerned.

J. PUBLICATION/PRESENTATION OF RESEARCH FINDINGS

USM is authorized to publish, present, or disclose the results and outputs of the research conducted under this Agreement, provided that no

LEB DANIEL SUE-LAN, MD
Project Leader

ENG. NORMINA B. PAHM
Project Leader

DR. JOSEPHINE R. FLORES
Project Leader

JONALD C. MENTELE, PhD
Project Leader

ENGR. SAMMY T. MALAWAN, CEDE
Regional Director, DOST XII

ARBITER L. TAN, MD, MPH, CEO III
Regional Dir. DOH XII

prejudicial disclosures are made, and no confidential information is revealed. All publications or presentations shall properly credit USM, DOST-XII/HRDC-XII, and DOH-XII as the sources of the output.

USM, DOST-XII/HRDC-XII, and DOH-XII retain the right to use all data and findings from the PROJECT in the pursuit of their respective academic or official functions.

K. RECOGNITION OF PRINCIPAL AUTHORS

All major reports related to the PROJECT shall be authored in the names of USM and DOH-XII. The principal authors, researchers, and project leader shall be duly identified and acknowledged in these reports.

Proper acknowledgment of the financial and other support provided by DOH-XII and DOST-XII/HRDC-XII shall be given in all reports, articles, and news releases.

L. PROJECT DURATION

The Project shall be completed within a period of nine (9) months, with the duration covering the period from December 2024 to August 2025.

M. DISCONTINUATION OF THE PROJECT

DOST-XII reserves the right to recommend the discontinuation of the Project at any time if there is a violation of this Agreement, or if it is determined that the results obtained do not justify further activities.

In the event the DOST-XII recommends discontinuing the Project, it shall notify all parties in writing at least sixty (60) days prior to the intended date of discontinuation, providing the reasons for such recommendation. Following this, the parties shall convene promptly to discuss whether or not to continue the Project.

N. PROJECT DELAYS


Except for delays arising from circumstances beyond the control of the Parties, such as force majeure or similar events, no extension of the Project period shall be permitted. In cases of uncontrollable circumstances, an extension may be granted in writing and signed by all parties but without incurring additional Project costs.

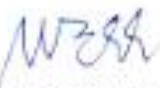
O. THIRD PARTY PARTICIPATION

Any activity related to the implementation of the Project that involves third parties, such as the provision, import, export, transfer, design, or use of equipment/software, collaborative research, or use of facilities, must be disclosed by USM to DOST-XII/HRDC-XII before engaging in the activity.


Any agreement entered into by USM without the prior consent of DOH-XII and DOST-XII/HRDC-XII shall not be binding on the parties, particularly concerning confidentiality, treatment, ownership, enforcement, and disposition of intellectual property rights arising from the activity. DOST-XII/HRDC-XII reserves the right to withhold consent if the agreement is deemed not to be in the best interest of the parties or gives undue advantage to third parties.

P. DISPUTE RESOLUTION


CHERRY PINK P. DIOCERA, CPA
ACCOUNTANT III, DOH XII


WAHID A. LUCAS
DIC-ACCOUNTANT, DOST XII


ARISTIDES C. TAN, MD, MPH, CESO III
Regional Director, DOH XII


ENGR. SAMMY P. MALAWAN, CESE
Regional Director, DOST XII


DONALD L. PIMENTEL, PhD
President, USM


DR. JOSEPHINE R. FLORES
Project Leader


ENGR. NORMINA P. PAHM
Witness


LIZA DANIEL SYCLAR
Witness

In case of any disputes between USM, DOST-XII/HRDC-XII, and DOH-XII arising from the interpretation or application of this Agreement, the parties shall exert their best efforts to address the same through amicable means, such as, but not limited to, mutual consultation and negotiation. However, if the parties fail to settle amicably, issues shall be resolved in accordance with Republic Act No. 9285, known as the "Alternative Dispute Resolution Act of 2004," and its Implementing Rules and Regulations (IRR).

Q. EFFECTIVITY

This Agreement shall take effect upon its execution and shall be in full force and effect until the completion of the Project in August 2025, unless earlier revoked by the parties.

IN WITNESS WHEREOF, the parties have hereto set their hands this 25 JUN 2024, 2024 in Koronadal City, South Cotabato, Philippines.

DOH-XII

DOST-XII

By:



**ARISTIDES CONCEPCION TAN, MD,
MPH, CESE III**
Regional Director and Chair, HRDC XII

By:



ENGR. SAMMY P. MALAWAN, CESE
Regional Director and Vice-Chair,
HRDC XII

USM

By:



DR. JONALD L. PIMENTEL
University President




DR. JOSEPHINE R. FLORES
Project Leader

Signed in the presence of:


ENGR. NORMINA P. PAHM
Regional Coordinator, HRDC XII


DR. LEE DANIEL SUELAN
DOH XII Permanent Representative,
HRDC XII


MR. WAHID A. LUCAS
OIC-Accountant, DOST XII


CHERRY PINK P. DIOCERA, CPA
Accountant III, DOH XII

ACKNOWLEDGMENT

REPUBLIC OF THE PHILIPPINES)
) S.S.

BEFORE ME, a Notary Public for and in City of Koronadal Philippines, this
25 JUN 2025, 2024 personally appeared:

Name	Gov't. Issued ID	Issued at/on
Dr. Aristides Concepcion Tan	PRC C066447	MANILA 02/09/1989
Engr. Sammy P. Malawan	TIN 407-500-247	WITBATO CITY/ JUNE 21, 2017
Dr. Jonald L. Pimentel	PASSPORT ID P23906608	DAVAO CITY JULY 1, 2019
Dr. Josephine R. Flores	PRC ID # 0003942	PRC MANILA/ MARCH 26, 1993

known to me and to me known to be the same persons who executed the foregoing instrument and they acknowledged to me that the same is their free and voluntary act and deed and that of the entities which they respectively represent.

This instrument refers to a Memorandum of Agreement consisting of seven (7) pages including this page on which this Acknowledgment is written, signed by the parties hereto and their instrumental witnesses on each and every page thereof.

WITNESS MY HAND AND SEAL on the date and place first mentioned.

Doc. No. 129
Page No. 26
Book No. II
Series of 2025 X


ATTY. ENGEL MAE E. ROSAL
Notary Public
Commission No. 605 until December 31, 2025
Roll No. 31140
IBP No. 457834, 12-26-2024, Pasig City
PTR No. 6147798, 01-05-25, South Cotabato
Purok San Miguel, Barangay Paraiso
Koronadal City, South Cotabato



implementation of the strategies on rabies control by LGUs in SOCCSKSARGEN;

5. Prepares the progress and terminal reports including a publishable article;
6. Proposes policies to improve the implementation of rabies control program in SOCCSKSARGEN;
7. Submits the research output to HRDC (DOST-DOH); and
8. Supervise the conduct of the research project.

By virtue of the designation, you be entitled to **receive a monthly honorarium of Php 6,000.00 for the whole duration of the project.**

This designation shall remain in force and in effect on **August 06, 2025 until August 06, 2026** unless otherwise revoked by the undersigned or by a competent authority. All issuances inconsistent with any provisions hereof are deemed revoked, amended or superseded.

JONALD L. PIMENTEL, PhD
 SUC President IV

By Authority of the President:

NERISSA G. DELA VIÑA, PhD
 HRMDO Director

Confirms:

- _____
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- ___ records
- ___ HRMDO/201 file
- ___ File
- ___ COA file
- ___ Board Secretary





Special Order No. 1954J

Series of 2025

TO: DR. ELIZABETH C. MOLINA

SUBJECT: Designation as **STUDY LEADER (RABIES RESEARCH) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"**

DATE: **Friday, 8 August 2025**

.....

In the exigency of the service and pursuant to the policy of harnessing the capabilities of faculty member/employee in managing the affairs of the University, you are hereby designated as **STUDY LEADER (RABIES RESEARCH) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"** being implemented by the University of Southern Mindanao, in addition to your appointive position effective immediately.

As such, you are expected to perform the following functions as follows;

1. Assists the project leader in the implementation of the research project and ensures that the project deliverables will be undertaken on time;
2. Assists in the mapping of areas where rabies cases in humans and animals are reported;
3. Assists in the preparation of questionnaire and conduct of survey to assess the awareness on rabies among households and barangay officials on rabies control and prevention, determine the extent of implementation of the strategies on rabies control by LGUs in SOCCSKSARGEN;
4. Edits the progress and terminal reports;
5. Prepares a publishable article;

Page 1 of 1

**"UNITY IN DIVERSITY AND
SUSTAINABLE DEVELOPMENT IN
MINDANAO THROUGH QUALITY AND RELEVANT EDUCATION."**



USM-SYS-F70-Rev 4-2010-07-14

CERTIFIED TRUE COPY:

MARGIE N. BUTUAN-GALANG

Chief Administrative Officer
University of Southern Mindanao

Date: _____



6. Proposes policies to improve the implementation of rabies control program in SOCCSKSARGEN; and
7. Assists in the supervision of the conduct of the research project.

By virtue of the designation, you be entitled to **receive a monthly honorarium of Php 4,000.00 for the whole duration of the project.**

This designation shall remain in force and in effect on **August 06, 2025 until August 06, 2026** unless otherwise revoked by the undersigned or by a competent authority. All issuances inconsistent with any provisions hereof are deemed revoked, amended or superseded.

JONALD L. PIMENTEL, PhD
 SUC President IV

By Authority of the President:

NERISSA G. DELA VIÑA, PhD
 HRMDO Director

Conforme:

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- ___ COA file
- ___ Board Secretary





Special Order No. 1952J

Series of 2025

TO: PROF. LILIAN A. LUMBAO

SUBJECT: **Designation as PROJECT STAFF (RABIES PROJECT) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"**

DATE: **Friday, 8 August 2025**

In the exigency of the service and pursuant to the policy of harnessing the capabilities of faculty member/employee in managing the affairs of the University, you are hereby designated as **PROJECT STAFF (RABIES PROJECT) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"** being implemented by the University of Southern Mindanao, in addition to your appointive position effective immediately.

As such, you are expected to perform the following functions as follows;

1. Assists the project leader in the implementation of the research project and ensures that the project deliverables will be undertaken on time;
2. Assists in the conduct of project inception with LGUs in SOCCSKSARGEN;
3. Assists in the mapping of areas where rabies cases in humans and animals are reported in SOCCSKSARGEN;
4. Prepares the questionnaire, applies for ethics approval and facilitates the conduct of the survey;
5. Assists in the preparation of terminal report and article to be published;
6. Assists in the formulation of policies to improve the implementation of rabies control program in SOCCSKSARGEN; and

Page 1 of 1

**"UNITY IN DIVERSITY AND
SUSTAINABLE DEVELOPMENT IN
MINDANAO THROUGH QUALITY AND RELEVANT EDUCATION."**

USM-SYS-Fro-Rev. 1.2020.07.24



CERTIFIED TRUE COPY
MARGIE N. BUTLIAN-GALANG
Chief Administrative Officer
University of Southern Mindanao
Date: _____



7. Assists in the conduct of the research project.

This designation shall remain in force and in effect on **August 06, 2025** until **August 06, 2026** unless otherwise revoked by the undersigned or by a competent authority. All issuances inconsistent with any provisions hereof are deemed revoked, amended or superseded.

JONALD L. PIMENTEL, PhD
SUC President IV

By Authority of the President:

NERISSA G. DELA VIÑA, PhD
HRMDO Director

Conforms:

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_____ Board Secretary





Special Order No. 2375B

Series of 2026

TO: MR. PRECIOUS AMOR B. FERREN

SUBJECT: Designated as PROJECT STAFF (RABIES PROJECT) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"

DATE: Friday, 8 August 2025

In the exigency of the service and pursuant to the policy of harnessing the capabilities of faculty member/employee in managing the affairs of the University, you are hereby designated as **PROJECT STAFF (RABIES PROJECT) ENTITLED: "TOWARDS ZERO RABIES: ASSESSMENT OF THE LGUs COMPLIANCE TO THE ANTI-RABIES ACT OF 2007 (RA 9482) IN SOCCSKSARGEN"** being implemented by the University of Southern Mindanao, in addition to your appointive position effective immediately.

As such, you are expected to perform the following functions as follows,

1. Assists the project leader in the implementation of the research project and ensures that the project deliverables will be undertaken on time,
2. Assists in the conduct of project inception with LGUs in SOCCSKSARGEN,
3. Assists in the mapping of areas where rabies cases in humans and animals are reported in SOCCSKSARGEN,
4. Prepares the questionnaire, applies for ethics approval and facilitates the conduct of the survey,
5. Assists in the preparation of terminal report and article to be published,
6. Assists in the formulation of policies to improve the implementation of rabies control program in SOCCSKSARGEN, and
7. Assists in the conduct of the research project.

This designation shall remain in force and in effect on **August 06, 2025 until August 06, 2026** unless otherwise revoked by the undersigned or by a competent authority. All issuances inconsistent with any provisions hereof are deemed revoked, amended or superseded.

JONALD L. PIMENTEL, PhD.

SUC President IV

By Authority of the President.

NERISSA G. DELA VIÑA, PhD

HRMDO Director

Conforme:

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___ File
___ CDA file
___ Board Secretary



Page 1 of 2





Special Order No. 280
 Series of 2023

TO: DR. JOSEPHINE R. FLORES

SUBJECT: Designation as STUDY LEADER of the study2 entitled, "Ethnoveterinary Therapies for Coccidia"

DATE: Tuesday, April 25, 2023

In the exigency of the service and pursuant to the policy of harnessing the capabilities of faculty member/employee in managing the affairs of the University, you are hereby designated as **STUDY LEADER of the study2 entitled, "Ethnoveterinary Therapies for Coccidia"**, being implemented by the University of Southern Mindanao, in addition to your appointive position, for the period January 2023 until December 2023.

By virtue of the designation, you be entitled to **receive a monthly incentive of Php 3,000.00 until the completion of the said project**. Please note that the last quarter of the productivity incentive can only be released upon submission of accomplishment report and publishable article (accepted and certified by the Editor-in-Chief) in JARDET or any refereed journal. As such, you shall integrate in your IPCR the following success indicator specific for this project aside from other projects handled.

- a. implements research project on schedule and with appropriate fund utilization.

This order shall remain in force and in effect until otherwise sooner revoked by the undersigned or any competent authority. All issuances that are inconsistent with any of the provisions hereof are deemed revoked, amended or superseded.

FRANCISCO GIL N. GARCIA, ABE, PhD
 SUC President IV

By Authority of the President:


TESSIE E. LERIOS, Ph.D.
 HRMDO Director

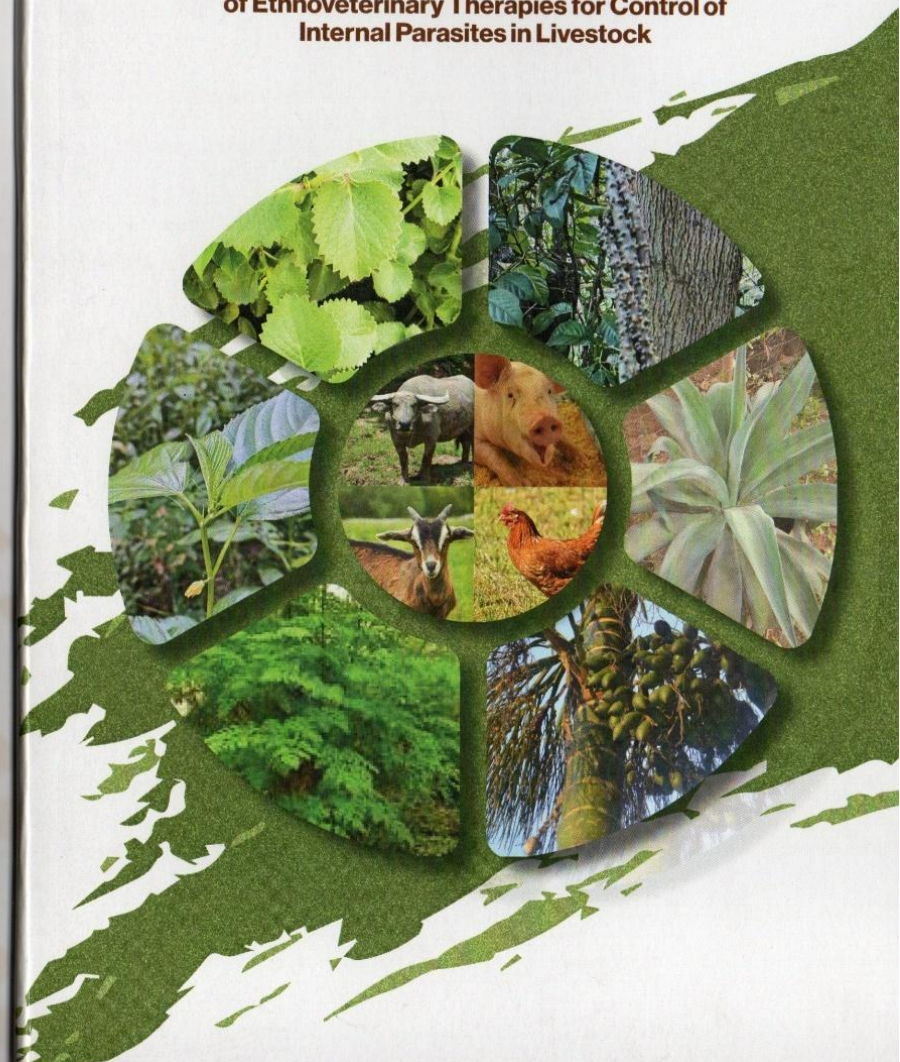
Conforme:

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- ___ File
- ___ COA file
- ___ Board Secretary



COMPENDIUM

of Ethnoveterinary Therapies for Control of
Internal Parasites in Livestock



Printed by
M

Republic of the Philippines
University of Southern Mindanao
Kabacan, Cotabato



Vision

Quality and relevant education for its clientele to be globally competitive, culture sensitive and morally-responsive human resources for sustainable development.

Mission

To accelerate the socio-economic development, promote harmony among diverse communities in Southern Philippines, and improve the quality of life through instruction, research, extension and production.

ACKNOWLEDGMENT

The production of this compendium is supported by the University of Southern Mindanao. All sources of data and information integrated in this handbook are hereby acknowledged.

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Jatropha curcas
Jatropha curcas
Jatropha curcas



Common Names

Tuba-Tuba; Tubang-bakod; Sambo; Tagumbao;
Kasla; Tangantangan; Physic Nut



Description

Jatropha curcas is a species of flowering plant belonging to the family Euphorbiaceae, that is native to the American tropics, such as Mexico and Central America (Janick and Pauli, 2008). It has spread to other regions in the world and has become naturalized in many areas (Cabi.org). The plant is found throughout the Philippines (<http://mixph.com/2007/08/growing-jatropha-tuba-tuba.html>). Retrieved May 23, 2023.

Anthelmintic benefit

In vitro killing of adult *Trichostrongylus spp.* by 40%, 50%, 60% and 70% concentrations of a methanolic extract from *J. curcas* leaves. The 40% concentration had killed adult worms after 12 hours of incubation; the 50% and 60% on the 9th hour; and the 70% on the 12th hour (Fugata, 2009).

In vitro effects of 40, 50, 60 and 70 percent leaf extract were demonstrated on eggs of *Trichostrongylus spp.* through inhibition of the hatching of eggs of the worms after 48 hours of incubation (Fugata, 2009).

Saluyot Saluyot Saluyot



Common Names

Saluyot; Pasau-na-bilog; Egyptian spinach;
Indian jute; wild jute; bush okra



Description

Corchorus olitorius is a year-round growing herb in the Family Malvaceae. The plant is a green leafy, and flower-bearing. It is natural to the tropical and subtropical regions throughout the world (Wikipedia). It has a height of 1-1.5 meters, heavily projected branches, and partly woody shrub. The leaves are ovate-lanceolate, glossy, dark green up to 5-15 cm long with finely serrated margins. The flower is small (2-3 cm in diameter), has no stalk attached at the junction of the leaves, solitary, and yellow-colored with five petals fruits that are 3 cm long and 1-2 cm in diameter, which enclose seeds (<http://www.stuartxchange.com/Pasau.html>).

Anthelmintic benefit

In vitro killing of adult *Hemonchus contortus* (abomasal worm): methanolic extract from unripe fruits and seeds at 70%, 80%, 90%, and 100% concentrations had killed adult worms. The 100% concentration had caused 100% mortality after 15 hours of incubation while the 70%, 80% and 90% had killed adult worms after 18 hours of incubation.

Egg hatch assay: All the concentrations had inhibited the hatching of eggs of *H. contortus*. The 100% and 90% concentrations had significantly similar number of eggs that were inhibited. The 70% and 80% concentrations had also inhibited the hatching of eggs, with the number of inhibited eggs significantly higher than the number of inhibited eggs observed in the negative control (distilled water) (Adamat, 2009).

Oreganum vulgare
Oreganum vulgare
Oreganum vulgare



Common Names
Origanum; Wild marjoram



Description

Oregano is an aromatic perennial herb of the mint family. Its leaves are compact and oval and arranged opposite each other. They are covered with glandular trichomes (plant hairs). The stems, when young, are typically square and hairy, and when these age, they become woody. Oregano flowers are small and are in clusters, and range from white to pink or pale purple in color (<https://www.britannica.com/plant/oregano> - retrieved March 31, 2023).

Anthelmintic benefit

Oregano oil extracted from the leaves and administered at a dose of 600 mg/kg body weight to goats naturally infected with common gastro-intestinal nematodes orally. A reduction in fecal egg counts of up to 74.69% on the 3rd week after a single treatment was observed. The efficacy of the oregano was comparable with that of levamisole as positive control (Abrenica, 2020).

NEEM NEEM NEEM



Common Names

margosa, neem, nimtree or Indian lilac



Description

Neem trees are attractive broad-leaved evergreens that can grow up to 30 m tall and 2.5 m in girth. Their spreading branches form rounded crowns as much as 20 m across (<https://www.britannica.com/plant/neem-tree>). Retrieved May 23, 2023.

Anthelmintic benefit

A 150 ml neem tree leaf extract showed an efficacy of 62.10% in reducing fecal egg counts in goats naturally infected with trichostrongylid nematode. This was comparable to the efficacy of ivermectin (73.82%). At post-mortem examination of the treated goats, no worms were observed in those goats given 150 ml of neem leaf extract (Octavio, 2019).

Ipil-Ipil Ipil-Ipil Ipil-Ipil



Common Names

Lead Tree, Reuse Wattel, White Popinac, Horse Tamarind, Wild Tamarind, Leucaena, Jumbie Bean, Jumbay, Ipil-ipil, Petai Jawa

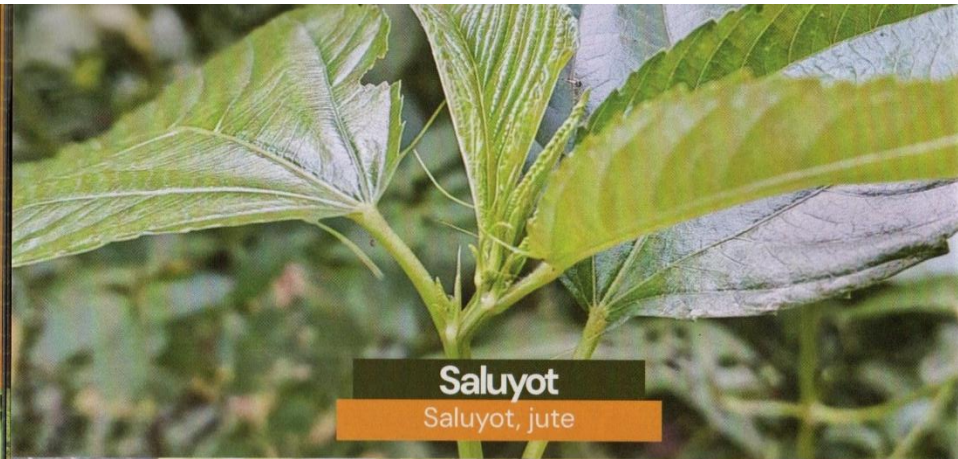


Description

Ipil-ipil belongs to the Leguminosae family, one of the fastest-growing leguminous trees. It contains a percentage of protein and vitamin A (<https://www.google.com/search?q=ipil+description&oq=ipil+description+&aqs=chrome>). Retrieved May 26, 2023.

Anthelmintic benefit

A 150 mg/kg BW concentration of leaf crude extract given at 0, 7, 14 and 21 days of the experiment had reduced the fecal egg counts to as much as 93.44% in goats naturally infected with trichostrongylid nematodes (Dandal, 2021).



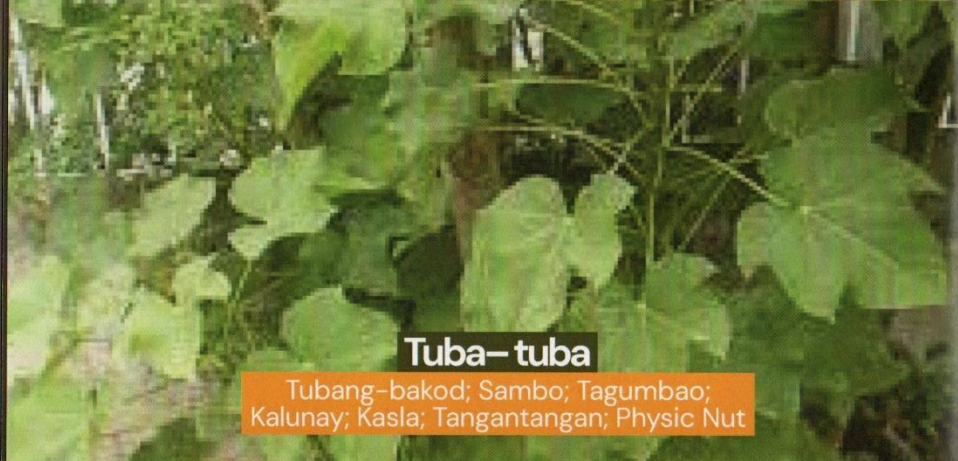
Saluyot

Saluyot, jute



Madre-de-Cacao

Cacao de nance, Cachanance



Tuba-tuba

Tubang-bakod; Sambo; Tagumbao;
Kalunay; Kasla; Tangantangan; Physic Nut

COMBINED KAKAWATE SALUYOT AND TUBA-TUBA

Description

Tuba-tuba is an erect, branched shrub usually less than one meter high.

Madre de Cacao does not become very tall, ranging in height from 6-33 ft. It has a smooth trunk, with whitish to gray-brown coloration.

Saluyot is famous for its sturdy, natural fiber but there are cultivars that are grown as a leafy vegetable. The young leaves are used fresh or dried.

Anthelmintic benefit

Combined ethanolic extract (100% kakawate, 100% saluyot and 100% tuba-tuba seeds) at a dose of 12 kg body weight administered to goats naturally infected with common gastrointestinal nematodes once orally. A reduction in fecal egg counts of up to 61.75% on day 7 after treatment was observed (Aballe, 2013).

KULTIS KULTIS KULTIS



Common Names

Amaranth, Chinese spinach, Tampala, Pigweed,
Kultis, Uray and Kudjapa



Description

Spinach is a herbaceous plant whose leaves, green and arranged in rosette, are eaten raw or cooked. The leaves have an oval shape and are wrinkled; they can be whole or sawed. It is a very nutritious, tasteful and easy-to-digest plant (<https://iveg.pcaarrd.dost.gov.ph/resource/journal/BPIKultis>). Retrieved May 7, 2023.

Anthelmintic benefit

Spinach pure extract administered at a dose of 100 mg/kg body weight to goats naturally infected with common nematodes once orally had reduced the fecal egg counts of the parasites in goats up to 86.20% on day 14 after a single dose (Viado, 2013).



Mango Mango Mango



Common Names

Mampalang (Sul.), pahutan, paho or pajo,
Manggang– kalabau



Description

Mangifera indica, commonly known as mango, is a species of flowering plant in the family Anacardiaceae. It is a large fruit tree, capable of growing to a height of 30 meters (<https://www.google.com/search?q=mango+description&oq=mango+description>. Retrieved May 26, 2023).

Anthelmintic benefit

The concentrations of 30%, 40%, 50% and 60% of the hydro-alcoholic extract of mango seed kernels were used in vitro against adult *Trichoschongylus* spp. The mango seed kernel extract with the concentrations 30%, 40% and 50% killed all the adult *Trichoschongylus* spp. within 15–18 hours of exposure while the 60% concentration killed all the adult parasites within 12–15 hours of exposure (Bernabe, 2009).

Mango seed extract administered to pigs naturally infected with gastrointestinal nematodes once orally at a dose of 800 mg of mango seed extract /kg body weight had reduced the fecal egg counts to 88.57% at day 28 after treatment (Reyno, 2021).

MAKABUHAY MAKABUHAY MAKABUHAY



Common Names

Makabuhay; Panyawan



Description

The plant is generally found in most islands of the Philippines. It is a climbing vine that grows in the wild and can be propagated through stem cutting. It can grow to a height of 4 to 10 meters. The leaves are thin-sheathed, heart-shaped, smooth and shining, 6 to 12 cm in length and 7 to 10 cm in width. It bears flowers that are pale green and short-pedicelled, and fruits that measure 7 to 8 mm long (Dweck, 2006).

Anthelmintic benefit

1. An ethanolic extract (200 mg/kg) of the stem administered to goats naturally infected with common gastro-intestinal nematodes had caused a reduction in the fecal egg counts after treatment with the highest efficacy of 83.81% on the 5th day post-treatment (Cagungao, 2017).
2. Capsulated extract administered to goats infected with *Hemonchus contortus* at a dose of 30 mg/kg body weight had resulted in 97.5% fecal egg count reduction (Dondonayos, 1998).
3. A powdered preparation of stem extract had been found to have similar efficacy to albendazole (commercial drug) when administered to buffaloes infected with liver fluke, *Fasciola gigantica* (Presto, 2007).

Tubli Tubli Tubli



Common Names

Derris; Tubli; Tuba



Description

Derris elliptica (Roxb) (Benth) is a leguminous plant. It is a vine with brown hairs covering its stems. The leaves are pinnate and grow up to 30–50 cm long and the oblong leaflets are 9 to 13 cm long. It bears pods which are 5 to 8 cm long and contain 1 to 3 seeds (wikipedia.org/wiki/Derris_elliptica). Retrieved August 7, 2023.

Anthelmintic benefit

Root powder (at 30%) incorporated into molasses–mineral–salt block and used as lick of goats naturally infected with common gastro–intestinal nematodes. The fecal egg counts of the nematodes in goats had decreased up to 88.27% on the 4th week, and 97.21% on the 6th week (Anunciado, 2021).

Carabao Grass

Carabao Grass

Carabao Grass



Common Names

yard-grass, goose grass, wiregrass, or crowfoot



Description

Goose Grass is a summer annual about ½–2' tall that is tufted at the base, sending up multiple ascending culms with alternate leaves. Most of the leaves are located toward the base of the culms. The culms are green, glabrous, and somewhat flattened; they are mostly hidden by the sheaths. The leaf blades are up to 10" long and 8 mm. (<https://www.google.com>). Retrieved May 26, 2023.

Anthelmintic benefit

In-vivo administration of 2,000 mg goose grass leaf extract /5 kg BW of goats had reduced the fecal egg counts of trichostrongylid nematodes in goats by 100% on Day 14 after a single treatment (Eway, 2021).

Banana Banana Banana



Common Names
Banana, Cavendish banana , Saging



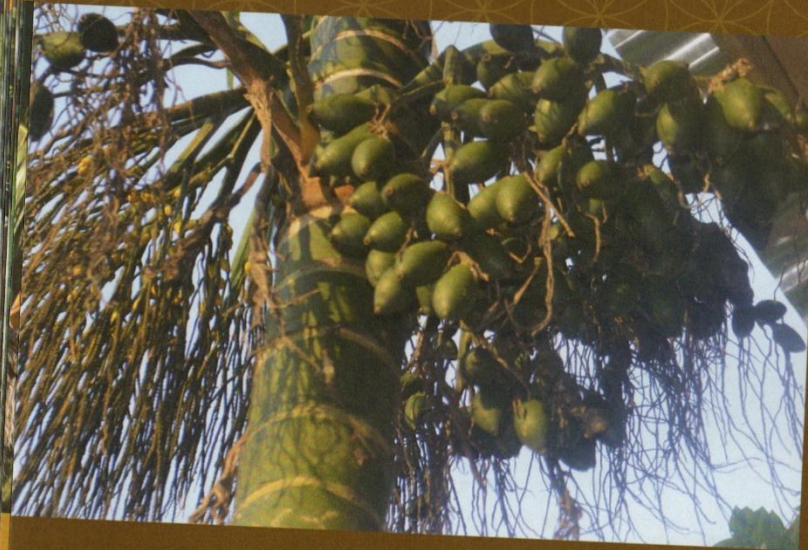
Description

A banana is a curved, yellow fruit with a thick skin and soft sweet flesh. A banana is a tropical fruit that is quite popular all over the world. It grows in bunches on a banana tree (<http://www.google.com/searchq=banana+description>). Retrieved May 26, 2023.

Anthelmintic benefit

A concentration of 9 ml/kg BW banana peel crude extract once a day on the 1st, 8th, and 15th day of the experiment had reduced the fecal egg counts to as much as 68.82% in backyard native chickens naturally infected with gastrointestinal nematodes (Maquerme, 2022).

BETEL NUT BETEL NUT BETEL NUT



Common Names

Becc. Bunga de Jolo , Actinorhynchus calapparia
Vidal. Bungang tsina



Description

Bunga is an erect, solitary tree growing to 25 meters high, and marked with annular scars. Leaves about 3 to 4 meters long with numerous leaflets, 60 to 90 centimeters long, the upper ones confluent (<http://www.stuartxchange.com/Bunga.html>).

Anthelmintic benefit

1. Betel nut extract (750 mg/kg) administered to goats naturally infected with common nematodes showed an efficacy of 71.78% on Day 7 and 75.41% on Day 14 after a single dose of treatment (Viado, 2013).

MAKABUHAY MAKABUHAY MAKABUHAY



Common Names

Panyawan



Description

Makabuhay can be found in wild forests and can be identified by its heart shaped leaves. Makabuhay is a shrub whose aerial roots climb other trees usually neem or mango trees (<https://www.google.com/search?q=makabuhay+plant+description>). Retrieved May 26 ,2023.

Anthelmintic benefit

1. Mixed makabuhay (250 mg/kg bw) and bunga (1500 mg/kg bw) extract administered to goats naturally infected with fasciolosis once orally had reduced the egg gram count of fasciola up to 90-100% at 21st day of treatment (Jaro, 2016).

MARIGOLD MARIGOLD MARIGOLD



Common Names
Tagetes, marigolds



Description

Members of the genus *Tagetes* have attractive yellow, orange, or red composite flowers that are solitary on the stems or clustered. The leaves are arranged opposite each other on the stem and are usually finely cut (<https://www.britannica.com/plant/marigold>) (<https://www.britannica.com/plant/marigold>). Retrieved May 22, 2023.

Anthelmintic benefit

In vivo, 100 mg/kg bw of marigold flower extract given once had significantly reduced the fecal egg counts of goats naturally infected with trichostrongylid nematodes on Days 1 to 21 post treatment. This was comparable to the positive control levamisole (Bernal, 2013).

Azadirachta indica
Azadirachta indica
Azadirachta indica



Common Names

margosa, neem, nimtree or Indian lilac



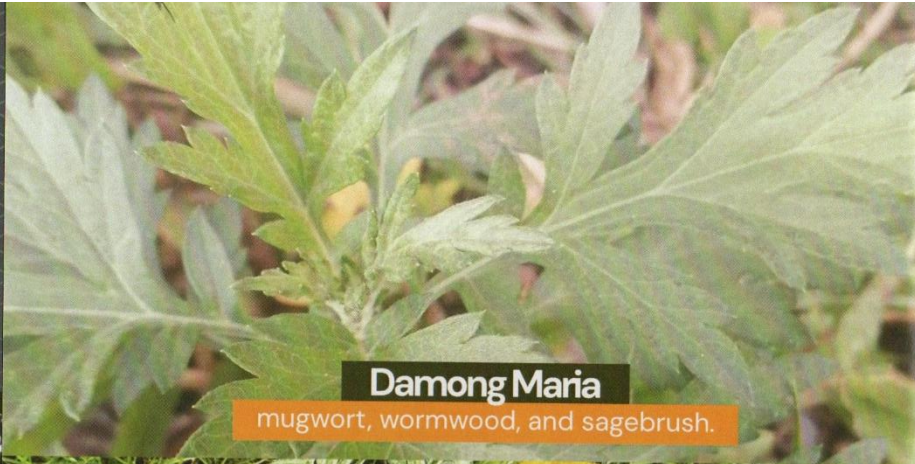
Description

The neem tree (*Azadirachta indica*) is one of nature's most versatile plants, and is best known for its highly effective insecticidal oil. However, as every part of the tree is used in different ways, there's a lot to discover about this fascinating species (<https://medium.com/@FastTreeRemovalServicesAtlanta/neem-tree-3information-uses>). Retrieved June 5, 2023.

Anthelmintic benefit

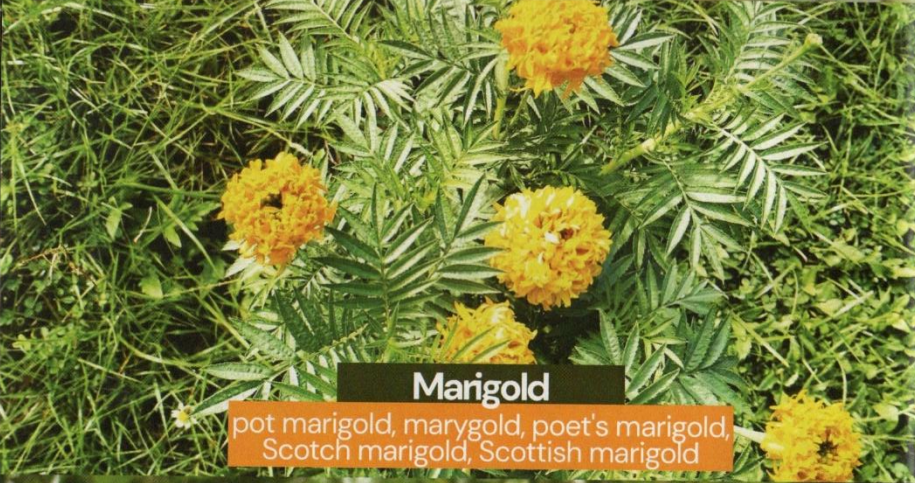
Neem leaf powder (at 30%) incorporated into molasses-mineral-salt block as licks in goats naturally infected with common gastro-intestinal nematodes. Fecal egg count reduction of up to 76.19% on the 6th week of ad-libitum access to the blocks (Bragado, 2021).





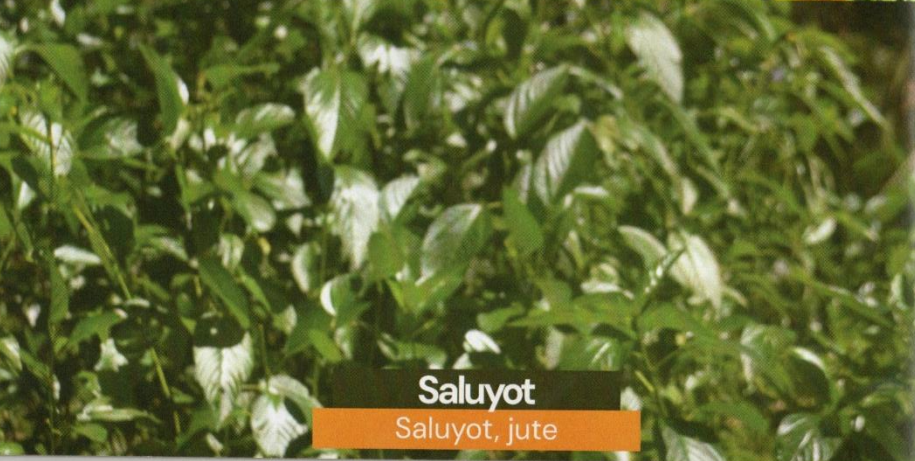
Damong Maria

mugwort, wormwood, and sagebrush.



Marigold

pot marigold, marygold, poet's marigold, Scotch marigold, Scottish marigold



Saluyot

Saluyot, jute

COMBINED CAPSULATED EXTRACTS OF SALUYOT, DAMONG MARIA AND MARIGOLD

Description

Damong Maria- an erect perennial herb, hairy, aromatic, rank smelling, often half-woody, growing to a height of 1 meter or less.

Marigold- members of the genus *Tagetes* have attractive yellow, orange, or red composite flowers that are solitary on the stems or clustered.

Saluyot - is famous for its sturdy, natural fiber but there are cultivars that are grown as a leafy vegetable. The young leaves are used fresh or dried.

Anthelmintic benefit

Combined capsulated extracts of saluyot, damong Maria and marigold (100% saluyot, 40% damong maria and 80% marigold) administered to infected goats with common nematodes once at a dose of 100mg/ kg body weight had resulted in 89.95% fecal egg count reduction at Day 7 after treatment (Halili, 2012).

Agave sisalina
Agave sisalina
Agave sisalina



Common Names

Sisal; Sisal hemp; Agave; Century plant; Sisal agave;



Description

Sisal is a monocotyledonous plant. It is a woody herb with a rosette of thick fleshy spiny leaves that are sword-shaped. The leaves measure up to 2 meters long, with spiny edges, and sharp, dark brown tip (The Environmental Weeds of Australia, Sheldon Navie & Steve Adkins, May 26, 2023).

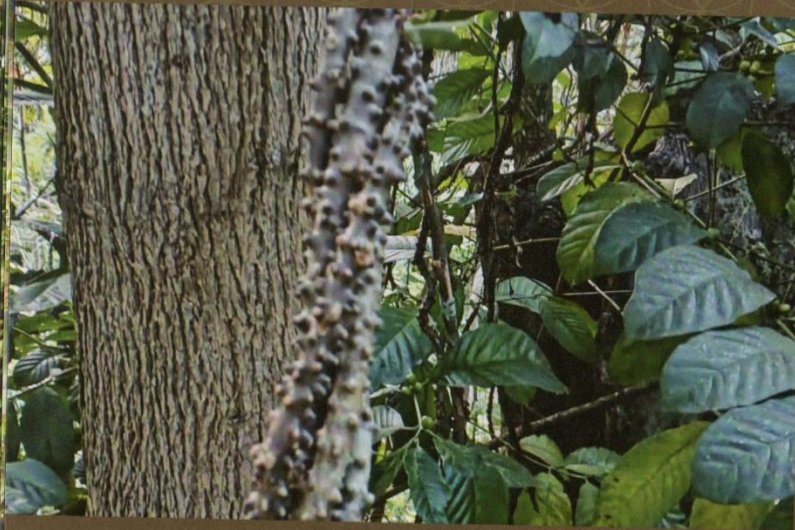
Anthelmintic benefit

The efficacies of ethanolic extract of sisal leaves (at 200 mg/kg body weight; 400 mg/kg body weight; 600 mg/kg body weight) administered as a single dose to goats naturally infected with common gastro-intestinal nematodes were as follows (Navos, 2021):

200 mg/kg bw: 71.08% (1st week); 81.89% (2nd week); 80.14% (3rd week);
400 mg/kg bw: 70.36% (1st week); 81.78% (2nd week); 76.24% (3rd week); and
600 mg/kg bw: 81.61% (1st week); 92.70% (2nd week); 86.92% (3rd week).

The efficacies were significantly similar with that of levamisole (a commercial drug).

MAKABUHAY MAKABUHAY MAKABUHAY



Common Names
Tinospora, Makabuhay, Boraphet



Description

Makabuhay is a climbing, dioeciously vine reaching a height of 4 to 10 meters. Stems are up to 1 centimeter thick and somewhat fleshy, with scattered protuberances. Leaves are thin, ovate, 6 to 12 centimeters long, and 7 to 12 centimeters wide, with pointed and truncate or somewhat heart-shaped based, smooth and shining (<https://www.google.com/search?q=description+of+makabuhay>). Retrieved (May 7, 2023).

Anthelmintic benefit

The concentrations of 600 mg/kg BW and 300 mg/kg BW of the stem extract of makabuhay had reduced the fecal oocyst counts to as much as 87.54% and 75.74%, respectively in goats naturally infected with coccidia on Day 28 after a single treatment (Saladino, 2021).

Moringa oleifera
Moringa oleifera
Moringa oleifera



Common Names

Malunggay; Marungay; Calamungay; Horseradish tree, Drumstick tree; Ben oil tree



Description

Moringa oleifera is an angiosperm plant that is native of the Indian subcontinent. It is a small deciduous tree with a sparse foliage. The tree can grow to a height of 10-12 m. It has a spreading open crown, typically umbrella-shaped. Leaves are alternate; 7-60 cm long, tripinnately compound with each pinnate bearing 4-6 pairs of leaflets that are dark-green, elliptical to obovate, and 1-2 cm in length. Its fruit is typically a 3-valved capsule, 10 to 60 cm in length. When young, the fruit is green and when it matures it turns brown (FAO, 2014).

Anthelmintic benefit

In vitro killing of adult *Trichostrongylus* spp. by 40%, 50%, 60% and 70% concentrations of a methanolic extract from *J. curcas* leaves. The 40% concentration had killed adult worms after 12 hours of incubation; the 50% and 60% on the 9th hour; and the 70% on the 12th hour (Fugata, 2009).

In vitro effect of 40, 50, 60 and 70 percent leaf extract was demonstrated on eggs of *Trichostrongylus* spp. through inhibition of the hatching of eggs of the worms after 48 hours of incubation (Fugata, 2009).

Gliricidia sepium
Gliricidia sepium
Gliricidia sepium



Common Names
Madre-de-Cacao; Kakawate



Description

Madre-de-Cacao is a medium-sized legume which belongs to the family Fabaceae. It reaches a height of 2-15 m and occasionally 20 m. It has a smooth grey-brown or pale whitish grey bark on young branches. The leaves are 15-35 cm long and arranged alternately or sometimes sub-opposite; they are pinnate with an odd terminal leaflet, and 6-24 opposite leaflets per leaf. The leaflets are narrowly elliptic to elliptic with pointed tips, and range in size from 44 to 83 mm long, 17-48 mm wide (Rojas-Sandoval, 2017).

Anthelmintic benefit

1. Leaf powder of madre-de-cacao was incorporated in molasses-mineral salt block at 50% and 60% concentrations. The blocks were used as licks for goats naturally infected with common gastro-intestinal nematodes. On the sixth week, a reduction in fecal egg counts of up to 72% (at 50%) and up to 85.38% (at 60%) was observed. These efficacies were significantly similar with that of the positive control which was ivermectin (a commercial drug) (Enriquez, 2021).
2. A combination of leaf powder of madre-de-cacao (30%) and leaf powder of moringa (30% malunggay) incorporated in molasses-mineral-salt block. The blocks were used as licks for goats naturally infected with common gastro-intestinal nematodes. An efficacy of 74.79% on the 6th week was observed, which was comparable with the efficacy of Ivermectin (Paule, 2021).

Bitter Gourd

Bitter Gourd

Bitter Gourd



Common Names

bitter melon; Goya; bitter apple; bitter gourd;
bitter squash; balsam-pear, ampalaya



Description

This herbaceous, tendril-bearing vine grows up to 5 m (16 ft) in length. It bears simple, alternate leaves 4–12 cm (1.6–4.7 inch across, with three to seven deeply separated lobes. Each plant bears separate yellow male and female flowers (<https://www.google.com/search?q=bitter+gourd&oq=bitter+gourd>. Retrieved June 20, 2023).

Anthelmintic benefit

The efficacy of three concentrations of leaf extract of the plant (300, 600, & 1000 mg leaf extract/kg BW of goats) was evaluated in goats naturally infected with trichostrongylid nematodes. The concentration of 1000 mg/kg BW given once exhibited 89.69% efficacy in reducing the number of eggs of the parasites in the goats' feces. The efficacy was comparable to levamisole (Millondaga, 2022).



Tobacco Tobacco

Common Names

Tobacco: Ciggies, darts, durries, rollies, smokes, fags, butts, cancer sticks.

Tobacco is the common name of several plants in the genus *Nicotiana* of the family Solanaceae, and the general term for any product prepared from the cured, aged, and processed in various ways.

Anthelmintic benefit

The efficacies of combined tobacco and nutgrass extract (500mg tobacco and 1250 mg nutgrass/kg BW; 1000mg tobacco and 2500 mg nutgrass/kg BW; 2000 mg tobacco and 5000 mg nut / kg BW; 2500mg tobacco and 6250 mg nutgrass/kg BW) in reducing fecal egg counts in goats naturally infected with trichostrongylid



Nutgrass Nutgrass

Common Names

Nutgrass: Coco grass, Ground almond, Java grass, Red nutgrass.

Nutgrass - A very troublesome weed of crops, orchards, vineyards, fallows, lawns, footpaths, gardens, parks, pastures, waste areas and disturbed sites. Nutgrass (brisbane.qld.gov.au) retrieved June 20, 2023.

nematodes were as follows (Quinlat, 2022):

500 mg tobacco and 1250 mg nutgrass (93.40%)

1000 mg tobacco and 2500 mg and nutgrass (95.27%)

2000 mg tobacco and 5000 mg nut grass-(97.74%)

2500mg tobacco and 6250 mg nutgrass (98.99%)

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