CAGAYAN STATE UNIVERSITY

EMERGING CENTERS OF INNOVATION

contents


AD ASTRA PER ASPERA

Bamboo-based AGROFORESTRY

Program Overview:

The Bamboo-based Agroforestry Program operationalizes the research, development and extension (RDE) niche program of CSU - Gonzaga. It focuses on the development and dissemination of appropriate technologies that integrate bamboo with other agro-forest produce including crop and farm livestock to mitigate deforestation, alleviate rural poverty, secure food stability, and address environmental instability.

E AGROFORESTRY CENTER

Program History:

Bamboo remains a principal building material throughout the Cagayan Valley. It is also an environmentally protective item. The bamboo has been a commodity of the campus since its establishment as a university. Numerous research and extension projects and activities have been conducted on the development and dissemination of bamboo-based technologies. However, with limited funding, bamboo has not became a priority program of the campus. Only recently has sufficient funding allowed the establishment of a fully operational and functional Bamboo and Mangrove Agroforestry Center at CSU Gonzaga.

WHAT WE DO:

1. Firm-up of bamboo-based agroforestry as RDE niche program of the campus with components of RDE activities;
2. Research on Bamboo Micro-propagation, Production and Commercialization;
3. Establish, restore, maintain and protect bamboo stands for for food, livelihood, and climate change mitigation;
4. Establish community-based bamboo plantation;
5. Expand campus-based bamboo nurseries, parks and genebank; and
6. Distribute bamboo propagules to growers

Contact Us:
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Program Leader
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COMMUNITY EMPOWERMENT THRU SCIENCE, TECHNOLOGY, EDUCATION, ENVIRONMENTAL PROTECTION, AND HEALTH (CESTEEPH) PROGRAM

Program Overview:

The CESTEEPH is a 4-year comprehensive, collaborative, and community-based program focusing on ecological development and empowerment of mangrove communities in Gonzaga, Cagayan and building their resiliency through science and technology, education, livelihood, environment protection, health and other interventions.

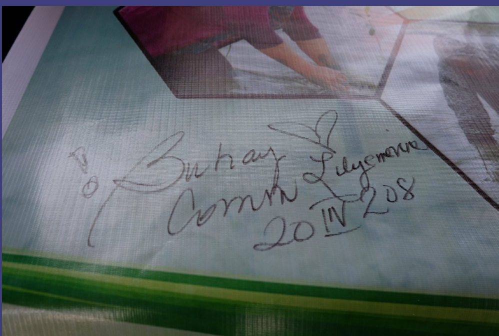
Program History:

Mangrove forests in Gonzaga are in a deplorable state with an average of only 25% living mangrove trees. Most of the areas manifested severe cutting, heavy erosion and siltation. The presence of poor, struggling and vulnerable fishing and farming communities in both areas makes the situation more precarious. Pursuant to the project is a Memorandum of Understanding (MOU) between CSU and SEAMEO-Biotrop at Brunei Darussalam to mark the start of the program.


EEPH
Project for Sustainable Conservation


Tropical Flora


GUESTS&PARTICIPANTS
TO THE
Launching of the Program
CESTEEPH
April 20, 2018 @
Barangay Caroan, Gonzaga Cagayan



What we do:

- Community life competency training
- Community planting of mangrove propagules
- Granting of educational hardware to school children
- Application of bioengineering in mangrove restoration
- Granting of livelihood assistance to fisherfolks along denuded mangrove areas
- Establishment of nurseries
- Establishment of home gardens
- Establishment of Farm Business Schools
- Coastal clean-up drives
- Partnership with local, national, and international agencies
- Advocacy campaigns and publications





Contact Us:

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FOOD INNOVATION CENTER

Program Overview:

The CSU-DOST02 Food Innovation Center is composed of four interrelated units focusing on food which emerged in a single project and became a hub. These units are Industry Assistance Unit, PINOY (Package for the Improvement of Nutrition of Young Children), Basic Research Unit, and Equipment Operation and Maintenance Unit.


Water Retort


Vacuum Fryer


Spray Dryer


Freeze Dryer

This project intends to enhance the innovative capacities of Micro Small and Medium Enterprises (MSMEs) in the food industry to improve the quality of their existing products and/or develop new ones; thereby increasing their competitiveness in local and export markets. Moreover, it harmonizes activities and rationalizes resources for industry development through better interface among R&D agenda, technology generation, S&T programs, and food industry needs.

Program Goals:

This project intends to enhance the innovative capacities of MSMEs in the food industry to improve the quality of their existing products and/or develop new ones; thereby increasing their competitiveness in local and export markets. Moreover, it harmonizes activities and rationalizes resources for industry development through better interface among R&D agenda, technology generation, S&T programs, and food industry needs.

With the initiative and support of DOST 02, through former Regional Director Dr. Urdujah A. Tejada, and with the participation of Cagayan State University (CSU) being the host institution, through University President Dr. Romeo R. Quilang, the regional FIC was established and completed through the efforts of CSU Carig CEO Engr. Arthur G. Ibañez.

CSU - DOST 02 FOOD INNOVATION CENTER

Transforming concepts into products

PALM STREET, CSU CARIG COMPOUND, CARIG SUR, TUGUEGARAO CITY, CAGAYAN 3500






What We Do:

- Improvement of food product quality
- Development of food products through line extensions product innovation
- Provide technical training
- Provide food analyses
- Provides technica and productivity consultancy services
- Assist cooperators or beneficiary firms in food processing and packaging

Fees:

Equipment	FIC 02 Customer Rate		FIC 02 Student Rate (20% off)	
	Rate per day	Rate per hour	Rate per day	Rate per hour
High Impact Technology Solutions (HITS) Equipment				
Vacuum Fryer	3,687	614	2,949	492
Water Retort	2,929	488	2,343	390
Spray Dryer	3,423	571	2,738	456
Freeze Dryer	2,711	NA	2,168	NA
Vacuum Sealer	2,086	348	1,668	278
Other Processing and Testing Equipment				
Single-Screw Extruder	1,641	274	1,313	219
Meat Mincer	1,038	173	831	138
Noodle Maker	1,023	170	816	136
Dough Mixer	1,034	172	827	138
Cabinet Dryer	1,854	309	1,483	247
Deep Fryer	1,159	193	927	155
Packaging Equipment				
Vertical Fill-Form-Seal	1,618	270	1,294	216
Horizontal Band Sealer	1,054	176	843	141
Induction Sealer	1,028	171	823	137
Impulse Sealer	1,015	169	812	135
Use of Facility and Testing Equipment				
Use of Facility	1,931	322	1,545	257
Heat Penetration Test	10,000	NA	8,000	NA
Packaging and Labeling				
Label Design w/o Concept Dev't	2,341		1,873	
Label Design w/ Concept Dev't	3,951		3,161	
Label Design for Box				
•Stock Design	5,178		4,142	
•Custom Design	6,067		4,854	
Logo Design w/o Concept Dev't	4,854		1,873	
Logo Design w/ Concept Dev't	3,951		3,161	

Contact Us:

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Center Focal Persons
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CENTRAL ANALYTICAL LABORATORY

Program Overview:

The Central Analytical (CA) Laboratory was established as an auxiliary service department under the Research Development & Extension Office of Cagayan State University. Its services include chemical and microbiological analysis of water, food, plant and plant extract. The Central Analytical Laboratory is a key partner to the success of the Research and Development programs of the entire CSU community.

Program History:

The Central Analytical (CA) Laboratory is composed of two sections namely: (1) Chemistry Laboratory and (2) Microbiology Laboratory. It houses equipment that were purchased with funds from the general fund. The grant was in the amount of worth PHP 34M for the purchase of technical and scientific equipment for research use. With the fully equipped laboratory, the NPRIC was established and approved by the CSU Board of Regents.

FACILITIES AND EQUIPMENT:

Analytical Chemistry


Rotary Evaporator


UV-Vis Scanning Spectrophotometer


High Performance Liquid Chromatography


Flourmeter

Animal Cell Culture

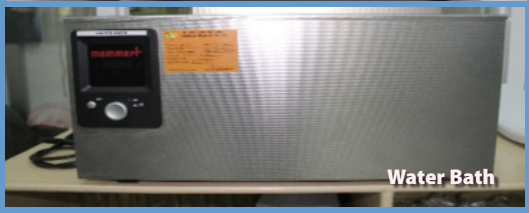
CO2 Incubator


Inverted Microscope

Microbiology


Biosafety Cabinet

Refrigerated Centrifuge With Rotors



Water Bath

Hot Room

Autoclave

Water Purification System


Gravity Convection Oven

Hyperspectral Imaging Room

Hyperspectral

Air Condition Unit

Plant Tissue Culture

Freezer

Refrigerator

SERVICES:

The Central Analytical Laboratory offers a wide variety of test methods for analytical and microbiology testing. The test parameters accepted in the laboratory include water, food, feeds, plants, and plant extracts.

ANALYTICAL TESTING LABORATORY

WATER		
Test Parameter	Test Method	Test Rate
Acidity	Titrimetry	500.00
Alkalinity	Titrimetry	500.00
Cadmium	FAAS	1,000.00
Calcium	FAAS	1,000.00
Chromium	FAAS	1,000.00
Calcium Hardness	Titrimetry	390.00
Chloride	Argentometry	750.00
Iron	FAAS	1,000.00
Lead	FAAS	
pH	Potentiometry	350.00
Sodium	FAAS	1,200.00
Sulfate	Turbidimetry	800.00
Total Dissolved Solids	Gravimetry	600.00
Total Solids	Gravimetry	320.00
Total Suspended Solids	Gravimetry	650.00
Total Hardness	Titrimetry	390.00
Conductivity		200.00
pH Determination		200.00

FOOD & FEEDS		
Test Parameter	Test Method	Test Rate
Ash	Gravimetry	550.00
Crude Fat	Solvent Extraction	960.00
Iron	FAAS	1,000.00
Moisture	Air Oven	400.00
Total Acid	Titrimetry	300.00
Sodium	FAAS	1,000.00
Calcium	FAAS	1,000.00
Cadmium	FAAS	1,000.00
Lead	FAAS	1,000.00
Copper	FAAS	1,000.00
Potassium	FAAS	1,000.00

PLANT & PLANT EXTRACTS		
Test Parameter	Test Method	Test Rate
Phytochemical Screening	Guevarra (2005)	1,200.00
Ethanolic Extraction	per 100g	300.00
Methanolic Extraction	per 100g	250.00
Aqueous Extraction	per 100g	130.00

MICROBIOLOGY TESTING LABORATORY

WATER		
Test Parameter	Test Method	Test Rate
E. Coli Count	SMEWW 2012	1,000.00
Heterotropic Plate Count	SMEWW 2012	1,000.00
Total Coiliform Count	SMEWW 2012	1,000.00

PLANT & PLANT EXTRACTS		
Test Parameter	Test Method	Test Rate
Sensitivity Test		
Agar-Well Diffusion		1,500.00
Paper Disc Diffusion		600.00

FOOD & FEEDS		
Test Parameter	Test Method	Test Rate
Total Coliform Count	FDA-BAM	550.00
E. Coli Count	FDA-BAM	1,000.00
Aerobic Plate Count	FDA-BAM	550.00
Yeast & Molds	FDA-BAM	550.00
Salmonella (rapid)	FDA-BAM	1,050.00
Staphylococcus aureus	FDA-BAM	1,200.00

OTHERS	
Test Parameter	Test Rate
Sterilization	160.00/hr
Drying of Samples	150.00/hr
Incubation	150.00/day
Absorbance Readding	130.00/hr
HPLC Analysis	case-to-case basis
Concentration of Extract	500.00/Liter
Water Bath	130.00/hr

Procedure:

1. Look at the services available
2. Accomplish Transmittal Form
3. Submit sample to the Laboratory
4. Pay required fee at the cashier
5. Claim Certificate of Analysis

Contact Us:

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TUKLAS LUNAS DEVELOPMENT CENTER

PROGRAM OVERVIEW:

The main objective of the program is to develop anti-infective, anti-pain and anti-tuberculosis herbal drug preparations that can be pursued further for pre-clinical and clinical development. The study takes off from folkloric uses from interviews with indigenous people as well as literature review.

The program is composed of 5 projects namely:

1. Non-toxic Bioactive Plant Extracts from Region 2 for Infection and Pain
2. Chemical Profiling and Standardization of Non-toxic Bioactive Extracts of Indigenous Plants.
3. Development of Functional Food Products from Edible Non-toxic Bioactive Plants
4. Pre-formulation and Formulation of Standardized Anti-infective and Anti-pain Extracts for Pre-Clinical Development
5. Cultivation of Priority Plants with Anti-infective and Anti-pain properties

PROGRAM HISTORY:

With an increasing trend of Filipinos preferring safer and effective remedies to minor ailments, a higher demand for herbal or traditional products is expected. The industry, including local players and community-academe partnerships have started to invest in research and development of these natural health products. Thus, medicinal plant species are the subject of intensive characterization and evaluative research to standardized herbal supplements in order to address infectious and inflammatory diseases.

WHAT WE DO:

- Screen for anti-infective and anti-pain potential of endemic, indigeneous, and rare plants from Region 2

- Standardize priority non-toxic bioactive extracts from endemic, indigeneous, and rare plants of Region 2

- Develop functional food products from edible non-toxic bioactive plants

- Develop dosage forms of ethanolic extracts of priority non-toxic bioactive plants for the treatment of infective diseases and pain for pre-clinical development

- Produce organically grown priority plants identified for program sustainability

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CLIMATE CHANGE PROGRAM

PROGRAM OVERVIEW:

The main objective of the program is to strengthen the capacities of universities, local government, institutions and communities in Region II to adapt and mitigate the impact of climate change through research, policies, timely intervention, information and advocacy, community mobilization and partnership with local, regional, national and international agencies. The focus of the program is capacity building for Climate and Disaster Risk Assessment, Local Climate Change Action Plan, Local Disaster Recovery Management, Mainstreaming and Master Program for Climate Change.

PROGRAM HISTORY:

As part of the university engagement with the Climate Change Commission Project ReBUILD and to establish a university platform in addressing the impact of climate change in Tuguegarao, one of the riskiest cities in the world in respect to disasters, flood and typhoons, the CSU envisioned the need for a holistic Climate Change Program. The engagement started through CCC Project ReBUILD followed by the harmonization with Regional Climate Change Program and Projects with partner institutions.

DAREMAPS
DISASTER RESILIENCY MAPPING

WHAT WE DO:

• Assist local government units in integrating Geographic Information System (GIS) Mapping on Climate Disaster Risk Assessment (CDRA) and Local Climate Change Action (LCCAP)

• Provide a pool of mentors and trainers for training and workshops in formaulating Local Climate Change Action Plan and integrating climate and disaster risk assessment.

• Conduct workshops on resilience capacity building for cities and municipalities to reduce disaster risk from climate change and natural hazards.

Contact Us:

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Project Manager
Phone: (078) 577 - 2954

PROGRAM OVERVIEW:

The Metals Innovation & Engineering Research and Development Center (MIERDC) is a joint venture between Cagayan State University (CSU) through the College of Industrial Technology (CIT) and the Department of Science and Technology (DOST) Regional Office 02 under the Memorandum of Agreement signed last January 22, 2015.

PROGRAM HISTORY:

The vision of the MIERDC is aligned with Executive Order No. 5 s. 2016 which states “Approving and Adapting the 25-year Long Term Vision Entitled Ambisyon Natin 2040 as a Guide for Development Planning”.

This is also consonant with the Medium Term Development and Investment Plan 2017-2022 of CSU President Urdujah A. Tejada for the Cagayan State University. Sec 4. provides that all plans of government offices shall be consistent with Ambisyon Natin 2040. DOST and CSU embrace “Matatag” ”Maginhawa” and ”Panatang” that makes a smart and innovative society.


MUNGBEAN SEED CLEANER


INNOVATED GRILLER


BRICKS-FIRED GRILLER

WHAT WE DO:

- Provide technical services and equipment for food processing

- Improve quality of education and increase the capabilities of metals artisans and entrepreneurs

- Contribute to the Climate Change and Disaster Mitigation Programs through the crafting of efficient and effective utilities

- Participate in the energy conservation through the fabrication of facilities and enrich utilization of Renewable Energy

- Establish Waste Management mechanisms to help maintain a clean environment

- Improve productivity and competitiveness in automotive metal, engineering, electrical industry

Contact Us:

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NATURAL PRODUCT RESEARCH AND INNOVATION CENTER

PROGRAM OVERVIEW:

The program is a combination of Basic Science and Applied Science projects and studies geared towards pre – formulation and development (formulation and evaluation) of functional food products, personal and homecare products, edible coatings, organic pesticides, bioremediation products, topical herbal formulation, chitosan – based products, and animal health products.

WHAT WE DO:

- Develop natural products pursuant to the program objectives

- Engage faculty members and students in research and innovation on natural products

Contact Us:

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Tropical Fruits and Orga

The Tropical Fruit and Organic Agriculture Center features the apiculture, diversified coconut production, and the mushroom production projects. The Center supports coconut-based cropping system - an integration of organic farming and honeybees to coconut farming.

Apiculture Project

The Cagayan State University at Sanchez Mira provides a techno-showcase on bee culture & conservation, product processing and bee integration to organic vegetables and tropical fruits, such as citrus and coconut.

WHAT WE DO:

- Train bee keepers and other farmer-cooperators on the management of stingless bees
- Process bee products
- Integrate bee keeping to organic vegetable, citrus and coconut farming

Diversified Coconut Production Project

This is a project to promote coconut based food and non-food product diversification and by-product utilization providing research opportunities to faculty and students as well as delivering a more sustainable livelihood for coconut farmers for them to provide adequately for their families.

WHAT WE DO:

- Conduct training on coconut based product development
- Assist farmers in the production and marketing of coco-based products.

anic Agriculture Center

Mushroom Production Project

This focuses on the optimized Utilization of Coconut Waste for the production and processing of different mushroom species for coconut-based biomass

WHAT WE DO:

- Expand and upgrade the existing mushroom production technology by establishing tissue culture laboratory
- Create technology for the utilization of coconut waste in mushroom production
- Partner with government and non-government organization on mushroom production and processing endeavors
- Train the members of the community to be mushroom technology adopters
- Involve students and faculty members in mushroom research and extension






Contact Us:

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THE CAMPUSES

Andrews Campus is home to Top Performers in Medical Technology & Respiratory Therapy for producing board topnotchers and for consistently garnering a 100% passing rate for the past years. It also boasts of its board performance in Accounting & Education. It has a commendable reputation in offering Law and Graduate School.

Aparri Campus is a leader in fisheries industry, this campus prides itself in conducting aquamarine researches generating various technologies in fisheries for the past 30 years. CSU Aparri was chosen by the World Bank together with other 7 universities in the Philippines, to be a regional institute for fisheries technology.

Carig Campus houses top calibre colleges that bring prestige to the university through their stellar board performance - the College of Medicine, the College of Engineering, the College of Veterinary Medicine and the College of Human Kinetics. It is also home to the Colleges of Arts & Sciences, and Public Administration, Industrial Technology, and the College of Information and Computing Sciences producing highly skilled graduates ready for employment.

Gonzaga Campus endowed with its agro-forestry commodity, the campus that lies at the foot of Mt. Tabungao gears up towards bamboo-based researches, extension services and production. It is agressively pursuing its development into an agro-ecotourism destination.

Lal-lo Campus is relentlessly pursuing agriculture-based knowledge and innovations that empower the marginalized sectors of society. Its programs are aimed towards their niche on legumes and other high value and cash crops.

Lasam Campus is the smallest campus in terms of land area and student population but boasts of its locally-made products that help boost community development. Its niche is Cacao value-adding and Industrial Technology. CSU Lasam inspired other campuses by its record of having the highest number of research publication in international and national refereed journals in 2017.

Piat Campus is home to the CSU Nature Farm, an Agri-tourism site accredited by the Department of Tourism that now caters to local and foreign tourists who prefer a rural landscape. The CSU Nature Farm also serves as a laboratory for students in Agriculture, and Hospitality Management. A center of livestock development of the university, the campus has established the Dairy Cattle Research and Development Center in support of the dairy industry in the region.

Sanchez Mira Campus' niche in organic agriculture and apiculture matches its mushroom and coconut based researches and extension services. Furthermore, the development of the old site at Nagbaranganan, now called Palmira Nature Village, has opened opportunities for the campus to explore sustainable agri-ecotourism.

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