



VISAYAS
STATE UNIVERSITY



DEPARTMENT OF
PURE & APPLIED CHEMISTRY

**Establishment of Functional Exsiccation Space for
Advanced Product Development**

FORM 1

Focal Persons:	
Name of Program, Activity, and Project Leader/Focal Person:	Dr. Elizabeth S. Quevedo
Alternate Focal Person:	Felix M. Salas, Genesis Albarico, David Tabada
Partner Agency (If applicable)	N/A
Nature of Partnership:	N/A
Overview	
Program, Activity, Project Proposal Title:	Establishment of Functional Exsiccation Space for Advanced Product Development
Short Description of the Proposal (Max. of 100 words)	A proposal on establishing a laboratory space on analytical dehydration technology for research development to enhance economic viability of local products and commodity towards community resilience and environmental conservation. This particular establishment promotes equal opportunity and advancement of micro, small, and medium-scale enterprises (MSME) by providing innovative dehydration technology for various product development which in turn will enable smarter and globally competitive entrepreneurs and pioneers.
Objective Statement (Max. of 100 words)	The main purpose of this proposal is the establishment, optimization, and validation of dehydration processes and techniques to promote bioeconomics and local products consumption in Eastern Visayas and the whole country.
Funding Requirement (in Php)	PHP 5,000,000.00

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Implementation Period (Max. of 12-month period)	From July 2023 to June 2024
Significance of the Proposal (Max. of 500 words)	This proposal targets to develop sustainable and innovative ways of dehydrating local products to promote bioeconomics and consumption. Strengthening the use and improvement of local products leads to the development of new functional products with high economic potential, that can contribute to the demands of the time.
Innovation Goals and Sector Relevance (Choose 1 main and as many other sectors if applicable)	<p>Main Sector:</p> <ul style="list-style-type: none"><input type="checkbox"/> Learning and Education<input type="checkbox"/> Health and well-being<input type="checkbox"/> Finance<input type="checkbox"/> Food and Agribusiness<input type="checkbox"/> Trade and Manufacturing<input type="checkbox"/> Transport and Logistics<input type="checkbox"/> Public Administration<input type="checkbox"/> Security and Defence<input type="checkbox"/> Blue economy and water<input type="checkbox"/> Energy<input checked="" type="checkbox"/> Sector-agnostic (cross-cutting)<input type="checkbox"/> Others (Please Specify) _____ <p>Other Sector:</p> <ul style="list-style-type: none"><input type="checkbox"/> Learning and Education<input checked="" type="checkbox"/> Health and well-being<input type="checkbox"/> Finance<input checked="" type="checkbox"/> Food and Agribusiness<input checked="" type="checkbox"/> Trade and Manufacturing<input type="checkbox"/> Transport and Logistics<input type="checkbox"/> Public Administration



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	<ul style="list-style-type: none"><input type="checkbox"/> Security and Defence<input type="checkbox"/> Blue economy and water<input type="checkbox"/> Energy<input type="checkbox"/> Sector-agnostic (cross-cutting)<input type="checkbox"/> Others (Please Specify) _____
Type of Funding Support	<p>Main Typology:</p> <ul style="list-style-type: none"><input type="checkbox"/> Pre-commercialization, Commercialization, or Diffusion Project<input checked="" type="checkbox"/> Innovation Facility or Services<input type="checkbox"/> Innovation Policy Research<input type="checkbox"/> Innovation Culture Promotion <p>Other Typology:</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Pre-commercialization, Commercialization, or Diffusion Project<input type="checkbox"/> Innovation Facility or Services<input type="checkbox"/> Innovation Policy Research<input type="checkbox"/> Innovation Culture Promotion
Responsive to Philippine Innovation Act (Choose Max. of 4)	<ul style="list-style-type: none"><input type="checkbox"/> MSME Innovation (Sec 12)<input checked="" type="checkbox"/> Innovation Centers and Business Incubators (Sec 13)<input checked="" type="checkbox"/> Regional Innovation and Cluster Development Program (Sec 14)<input checked="" type="checkbox"/> Strategic RD&E (Sec 15)<input type="checkbox"/> Diaspora for Innovation and Development (Sec 18)<input type="checkbox"/> Advocacy and Community Education (Sec 20) <p>Innovation Instruments (Sec 16)</p> <ul style="list-style-type: none"><input type="checkbox"/> Technology Programs<input checked="" type="checkbox"/> Technology Platforms<input type="checkbox"/> Human Capacity Building

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	<p>Programs</p> <p><input type="checkbox"/> Innovation Networks</p> <p><input type="checkbox"/> S&T Parks</p>
Applicable SDGs (Choose Max. of 4)	<p><input type="checkbox"/> SDG 1: No Poverty</p> <p><input type="checkbox"/> SDG 2: Zero Hunger</p> <p><input checked="" type="checkbox"/> SDG 3: Good Health and Well-being</p> <p><input type="checkbox"/> SDG 4: Quality Education</p> <p><input type="checkbox"/> SDG 5: Gender Equality</p> <p><input type="checkbox"/> SDG 6: Clean Water and Sanitation</p> <p><input type="checkbox"/> SDG 7: Affordable and Clean Energy</p> <p><input checked="" type="checkbox"/> SDG 8: Decent Work and Economic Growth</p> <p><input checked="" type="checkbox"/> SDG 9: Industry, Innovation and Infrastructure</p> <p><input type="checkbox"/> SDG 10: Reduced Inequality</p> <p><input type="checkbox"/> SDG 11: Sustainable Cities and Communities</p> <p><input checked="" type="checkbox"/> SDG 12: Responsible Consumption and Production</p> <p><input type="checkbox"/> SDG 13: Climate Action</p> <p><input type="checkbox"/> SDG 14: Life Below Water</p> <p><input type="checkbox"/> SDG 15: Life on Land</p> <p><input type="checkbox"/> SDG 16: Peace and Justice strong institutions</p> <p><input type="checkbox"/> SDG 17: Partnership to Achieve the Goals</p>
Objectives and Target Outcomes	
Target Beneficiaries:	Local Producers, MSME's, and Innovators
Specific Target Groups	<p><input type="checkbox"/> Youth and Children</p> <p><input type="checkbox"/> Senior Citizen</p> <p><input type="checkbox"/> PWD</p> <p><input type="checkbox"/> Indigenous People</p> <p><input checked="" type="checkbox"/> Geographically Isolated and Disadvantaged Areas</p> <p><input type="checkbox"/> Gender and Development Groups</p> <p><input type="checkbox"/> Others (Please Specify):</p>
	<p>Outcome Indicators</p> <p>Output Indicators / Physical Target Accomplishment</p>



Logical Framework: Outcome and Output Indicators	1. Established laboratory space for dehydration technology capable of Foam-Mat Drying, Osmotic and Convection Drying, Lyophilization, and Spray Drying techniques.	1.1 Laboratory space
		1.2 Installation, operational testing, and in-house training of each instrument
	2. Optimized functionality in terms of dehydration rate and cost of each technique.	2.1 Tested the identified VSU products
		2.2 Determined the dehydration rates and costs
	3. Validation of the efficiency of each optimized dehydration technique.	3.1 Evaluated the moisture content, water activity, physico-chemical, shelf-life, and sensory/visual quality of the commodity
Implementation		
Narrative of Implementation Plan and Strategies (Max. of 700 words)	<p>The laboratory space will be established at the Department of Pure and Applied Chemistry (DoPAC) or at the Advanced Research and Innovation Center (ARIC), Visayas State University (VSU), Baybay City, Leyte. Procurement of the ADI's will then proceed following the standard procurement process. Once delivered, ADI's will be installed and operationalized immediately to commence in-house training for each instrument.</p> <p>Initial testing of institutional products of VSU according to the following categories:</p> <ol style="list-style-type: none"> 1. Raw products 2. Synthetic products 3. Semi-processed products 4. Processed products 5. Fortified products 6. Formulated products <p>for suitability purposes. Suitable products will be subjected to the appropriate dehydration technique and then proceed to the corresponding optimization process. After optimization, the resulting product will then be validated in terms moisture content, water activity, physico-chemical attributes via Differential Scanning Calorimetry-Thermogravimetric Analysis (DSC-TGA), shelf-life, and sensory/visual quality.</p>	



Scale of Implementation and Impact	<input type="checkbox"/> Nationwide <input type="checkbox"/> Interregional <input checked="" type="checkbox"/> Regional <input type="checkbox"/> Local
Sustainability	
Narrative of Sustainability Plan (Max. of 500 words)	<p>The established laboratory space will provide an instructional facility for future and aspiring entrepreneurs such as but not limited to BS Chemistry and non-chemistry majors. Moreover, the space will be a showcase for research engagements as well as for extension activities.</p> <p>Technology diffusion will be implemented by the unit which will be supported by creating IEC materials and foster linkages with the local government unit, DOST, DA, DOT, DTI, and non-government agencies for funding and support.</p>
List of Supporting Documents (If applicable)	Agency Endorsement

FORM 2

Instructions: List down at most 5 similar Program/Activity/Projects that have been implemented by the proponent in the past 3 years (input N/A in the required fields if not applicable)

Program/Activity/Projects #1		
Project Title:	N/A	
Implementation Period:	N/A	N/A
Funding Source(s):	N/A	
Funding Amount: (estimate)	N/A	
Brief Project Description: (including web links, if applicable)	N/A	

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Physical Accomplishments:	N/A
Supporting Documents: (allowed file type: pdf, jpg, jpeg, png, zip; max file size 10MB)	N/A

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Physical Accomplishment - 1st Semester								
Activity/Physical Accomplishment	Output Indicator/KPI	Target	Timeline					
			Q3-2023			Q4-2023		
			JUL	AUG	SEPT	OCT	NOV	DEC
1.1 Set-up of a laboratory space	1.1 Laboratory space	1	Request for space.	Procurement of equipment	Procurement of equipment	Procurement of equipment		
1.2 Procurement of ADI's.	1.2 Installation, operational testing, and in-house training of each instrument	19			Procurement of equipment	Conduct tests to determine the appropriate dehydration technique	Conduct tests to determine the appropriate dehydration technique	Conduct tests to determine the appropriate dehydration technique
2.1 Identification of institutional products for testing	2.1 Tested the identified VSU products	6						
2.2 Determination of dehydration rate and cost of each technique	2.2 Determined the dehydration rates and costs	6						

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3.1 Evaluation of the moisture content, water activity, physico-chemical, shelf-life, and sensory/visual quality of the tested commodity	3.1 Evaluated the moisture content, water activity, physico-chemical, shelf-life, and sensory/visual quality of the commodity	6						
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Physical Accomplishment – 2nd Semester								
Activity /Physical Accomplishment	Output Indicator /KPI	Target	Timeline					
			Q1-2024			Q2-2024		
			JAN	FEB	MAR	APR	MAY	JUN
1.1 Set-up of a laboratory space	Laboratory space	1						
1.2 Procurement of ADI's.	1.2 Installation, operational testing, and in-house training of each instrument	19						
2.1 Identification of institutional products for testing	2.1 Tested the identified VSU products	6	Conduct moisture content, water activity, physico-chemical,	Conduct moisture content, water activity, physico-chemical,	Conduct moisture content, water activity, physico-chemical,	Conduct moisture content, water activity, physico-chemical,	Analysis of data and submission of output	Analysis of data and submission of output

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			shelf-life, and sensory / visual quality of the tested commodity	shelf-life, and sensory / visual quality of the tested commodity	shelf-life, and sensory / visual quality of the tested commodity	shelf-life, and sensory / visual quality of the tested commodity		
2.2 Determination of dehydration rate and cost of each technique	2.2 Determined the dehydration rates and costs	6						
3.1 Evaluation of the moisture content, water activity, physico-chemical, shelf-life, and sensory/visual quality of the tested commodity	3.1 Evaluated the moisture content, water activity, physico-chemical, shelf-life, and sensory/visual quality of the commodity	6						

Financial Targets						
Activity/Physical Accomplishment	Resource Requirement					
	Type of Expense	Items	Estimated Cost			Action
			Unit Estimate	Qty	Sub-Total	
1.1 Set-up of a laboratory space	Other Professional Requirement	Chemical and laboratory technician	200,000	1	200,000	
1.2 Procurement of ADI's	1.2.1 Technical and Scientific Equipment	Biosafety Cabinet	700,000	1	700,000	

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	1.2.2 Technical and Scientific Equipment	Incubator, 100- 200L	200,000	1	200,000	
	1.2.3 Technical and Scientific Equipment	Moisture Analyzer	150,000	3	450,000	
	1.2.4 Technical and Scientific Equipment	Water Activity Meter	250,000	1	250,000	
	1.2.5 Technical and Scientific Equipment	Laboratory Convection Oven, 100-200L	200,000	1	200,000	
	1.2.6 Technical and Scientific Equipment	Lyophilizer	700,000	1	700,000	
	1.2.7 Technical and Scientific Equipment	Spray Dryer	750,000	1	750,000	
	1.2.8 Technical and Scientific Equipment	Ultrasonicator	150,000	1	150,000	
	1.2.9 Chemical and Filtering Supplies	Laboratory Wares and Chemicals	300,000	1	300,000	
	1.2.10 Technical and Scientific Equipment	Glass blowing Station	115,000	1	115,000	
	1.2.11 Technical and Scientific Equipment	Hotplate Stirrer, Large Capacity	175,000	1	175,000	
	1.2.12 Technical	Water Bath, 24L	150,000	1	150,000	

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	and Scientific Equipment					
2.1 Identification of institutional products for testing	2.1.1 Honoraria	Program Leader	48,000	1	48,000	
	2.1.2 Honoraria	Project Leaders	24,000	3	72,000	
	2.1.3 Traveling Expenses-Local	Project/Program Leaders and Personnel Travel expenses	100,000	1	100,000	
	2.1.4 Office Supplies Expenses	Office Supplies	50,000	1	50,000	
2.2 Determination of dehydration rate and cost of each technique	2.2.1 Honoraria	Program Leader	48,000	1	48,000	
	2.2.2 Honoraria	Project Leaders	24,000	3	72,000	
	2.2.3 Traveling Expenses-Local	Project/Program Leaders and Personnel Travel expenses	100,000	1	100,000	
3.1 Evaluation of the moisture content, water activity, physico-chemical, shelf-life, and...	3.1.1 Honoraria	Program Leader	48,000	1	48,000	
	3.1.2 Honoraria	Project Leaders	24,000	3	72,000	
	3.1.3 Office Supplies Expenses	Office Supplies	50,000	1	50,000	
TOTAL:					₱ 5,000,000.00	

Prepared by:

ELIZABETH S. QUEVEDO
Project Proponent

Recommending Approval:

MARIA JULIET C. CENIZA

VP for Research, Extension and Innovation

Approved:

EDGARDO E. TULIN

President

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