



**QUARTERLY RESEARCH PROGRESS REPORT**  
**QUARTER: 1<sup>st</sup> (JAN - MARCH 2024)**

**Research Title: Biological Activity and Chemistry of Essential Oils for  
Agriculture, Pharmaceuticals and Industry**

**I. Program/Project/Study Objectives:**

**A.** Develop products with enormous agricultural, pharmaceutical, and medicinal importance thereby opening a lot of opportunities for our agricultural students, farmers, food manufacturers and medical industries.

**II. Relevance to VSU & College's Thrust and Priorities:**

**A.** This project will definitely respond to the objectives of the VSU Internationalization Programs especially in the aspects of increasing collaboration with foreign HEIs on research; providing access to our students and staffs for training and studies abroad; increasing the number of foreign researchers and visiting scientists in the university, establish joint degree programs with foreign universities.

**III. Highlights of accomplishments within the quarter**

**A. Targets for the quarter**

- A1.** Sample collection of previously identified different native trees for essential oil extraction and voucher specimen.
- A2.** Identification and collection of potentially essential oil containing native trees with ethnobotanical uses.

**B. Highlights of accomplishments**

- B1.** Collection and hydrodistillation of the eleven (11) oil-bearing tree species.
- B2.** Balukanag (*Chisocheton cumingianus*) and Bayag-usa (*Voanga globosa*) are additional species to the existing eleven (11) native tree species.





2. Balukanag (*Chisocheton cumingianus*) a member of the *Meliaceae* family and Bayag-usa (*Voangca globosa*) under *Apocynaceae* family (Figure 3) were identified and collected within VSU campus. Leaf and fruit samples were cleaned, dried and extracted.



Figure 3. (a) Balukanag (*Chisocheton cumingianus*) (b) Bayag-usa (*Voangca globosa*)

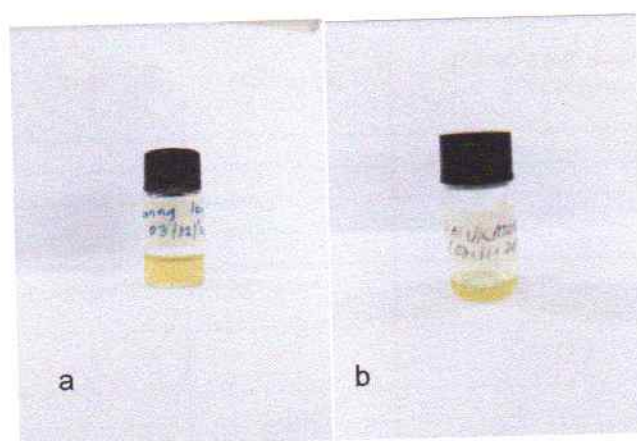


Figure 4. Essential oil of Balukanag (*Chisocheton cumingianus*) (a) leaf and (b) fruit



#### IV. Physical Report of Operation

##### A. Research Program

	Particulars/Name and Brief Description of Utilized/ Commercialized Technologies	Number
<b>Outcome Indicator</b>		
1. Number of research outputs utilized by the industry or by other beneficiaries		
<b>Output Indicator</b>		
1. Number of research outputs completed within the year		
2. Percentage of research outputs published in internationally-referred or CHED recognized journal within the year		

##### B. Technologies/Information patented and commercialized

Technology Invention(s) New Information	Invention Patent Number	Date of Issue	Utilization of Invention		Name of Commercial Product
			Development	Service	
<b>A. Technology Invention(s)</b>					
<b>B. New Information</b>					

##### C. Research papers published (*Identify if articles were for Research, Extension, Innovation or MSc/ PhD Studies*)

	Title	Author (s)	Date/Year/Publication/ Publisher	Remarks (if Research, Extension, Innovation, Thesis, MSc/PhD)
a. Refereed Journal				
Institutional				
National				
International				
b. Semi-popular publ'n (newsletter, etc.)				
c. Popularized pub'ln (technoguides, etc.)				
d. Book Chapter/s				
e. Books				





**D. Citation**

Research Output as Cited by Other Researcher(s) in Journal Activities									
Title of Research Output/ Published Journal Articles/ Book	Title of Journal & Vol. Issue/ Year	Keywords	Researcher (s)	Citation Details					
				Author(s) Who Cited the Research Output	Title of Article Where the Research Output Was Cited	Title of Journal	Vol. / Issue / Page No.	City/ Year Published	Publisher

**V. Issues, Problems, and Recommendations**

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*Center Director*

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