

# Phytochemical Study of Plants of Interest for Cosmetics in Mayotte



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## Introduction

Since immemorial times, people have used plants for energizing, and repairing themselves, these plants are deeply linked to our evolution and our culture. This study aims at identifying the plants used traditionally in Mahoran culture for cosmetics in order to develop new products. Therefore, a chemotaxonomical study was conducted to identify some physiologically active plant genus and an ethnobotanical study took place on the Island at the end of the dry season. Based on the results of both studies some samples were collected and are going to be tested for several physiological activities.



Figure 1 : Traditional cosmetics

## Material and method

Prior to the in-field mission a chemotaxonomical study was realized. The known pharmacopeia from several islands surrounding Mayotte (the Seychelles, the Reunion and Madagascar) was identified and the different genus recorded were compared with the ones found in the flora of Mayotte in order to identify plants with similar activities. The selection criteria were : the genus, the activity and the availability of the selected genus on the island.

The in-field ethnobotanical study was based on Trotter and Logan's (Trotter and Logan 1986) principle. Criteria such as the size of the database, the taxonomical identification and the informant consensus ratio were seriously taken into account throughout the study. Even though three activities were targeted, all the information given by the informants were recorded.

The informant were selected based on their reputation and their profession and the interviews were done using a semi-structured form. For each informant, a small social survey was done (age, education, profession, religion) and for each plant mentioned during the survey the following information were recorded : its vernacular name, the part used, its role, its posology, whether it is used dry or fresh and where it can be found (Mercy and Triolo 2014). The different activities mentioned by the informants were then differentiated in the three physiological activities aimed for in this study. These activities being : antioxidant, anti-tyrosinase and anti-inflammatory.

The preliminary screening is about to take place on crude extracts issued from the samples collected during the first in-field mission. These screening will allow an accurate selection of plants of interest, thus allowing a future targeted sampling.



Figure 2: Interview repartition throughout the island. Interview/commune.

## Results

In the end, 30 informants were interviewed in most of the Island's regions (Figure 2), and 124 vernacular names were recorded. Due to several languages spoken on the island only 94 Latin names were obtained after the plant's identification.

Cosmetically interesting activities were mentioned 107 times throughout all the interviews. The collected data were analyzed using the following indicators: use value, Informant assessment ratio and fidelity level (Moerman 2007)(Srithi, Balslev et al. 2009)(Nunkoo and Mahomoodally 2012). (Figure 3) Thus allowing us to isolate 22 plants that might show interesting antioxidant, anti-tyrosinase and anti-inflammatory activities. In addition 5 plants were selected based on the chemotaxonomical study. (Table 1)

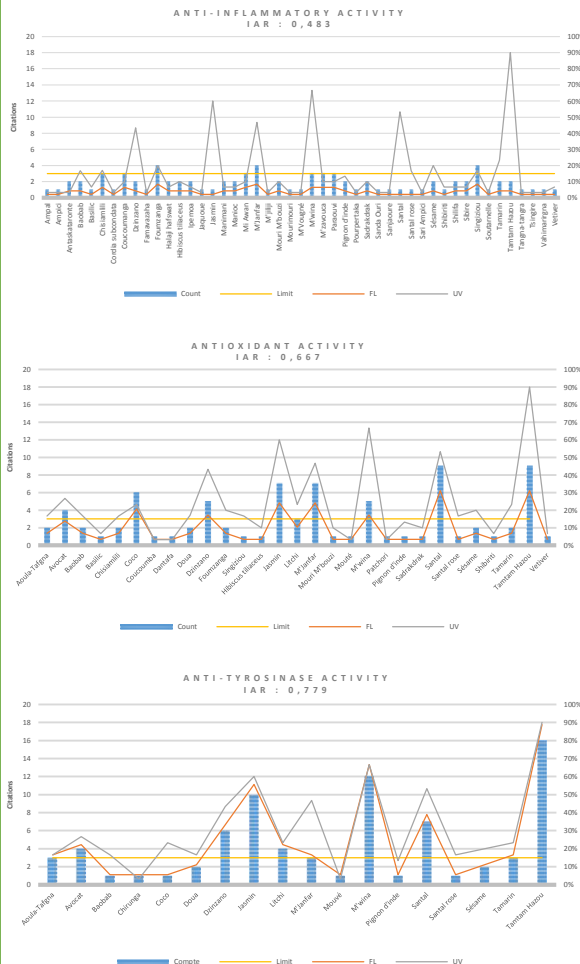


Figure 3 : Different plant and the activity they have been cited for. Based on the literature, the limit stands for the number of citation below which the plant were not considered as relevant. The informant assessment ratio, the use value and the fidelity level a shown as lines.

Name	Part	Part	Anti-inflammatory	Anti-oxidant	Anti-tyrosinase	Perfume
<i>Adansonia digitata</i> L.	Fruit	D	X			
<i>Aloes mayottensis</i>	Cell	D	X	X		
	Mucilage					
<i>Carissa edulis</i> Vahl.	Cambium	D		X	X	
<i>Curcuma longa</i>	Rhizome	F	X	X	X	
<i>Guettarda speciosa</i> L.	Cambium	D	Flower	F	X	X
<i>Jasminum nummulariaefolium</i>	Flower	F	F	F	X	X
<i>Kalanchoe pinnata</i> (Lam.) Pers.	Leaf	F	X			
<i>Lawsonia inermis</i>	Leaf	F		X	X	X
<i>Litsea chinensis</i>	Cambium	D	Roots	D	X	X
<i>Litsea glaucescens</i>	Sap	F	X			
<i>Myristica fragans</i> Houtt.	Fruit	D	X			
<i>Pandanus maximus</i>	Flower	D		X	X	X
<i>Persea americana</i>	Kernel	D		X	X	
<i>Plectranthus madagascariensis</i>	Leaf	F	X			
<i>Senna tora/alata</i>	Cambium	D	Leaf	F	X	
<i>Sesamum indicum</i>	Seed	D	X	X		
<i>Syzygium aromaticum</i> (L.) Merr. et L.M. Perry	Flower-bud	D	X			X
<i>Tamarindus indica</i>	Bark	D	Cambium	D	X	X
<i>Vegris boviniana</i>	Leaf	D	Cambium	D	X	
<i>Zingiber zerumbet</i> (L.) Sm.	Rhizome	F	X	X		
Tamtam hazou**	Seed	D		X	X	
Aoula tafna**	Body	D		X	X	
<i>Erythroxylum corymbosum</i> *	Leaf	F	X			
<i>Erythroxylum lanceum</i> *	Leaf	F	X			
<i>Acalypha hispida</i> *	Flower	F	X			
<i>Jatropha multifida</i> *	Leaf	F	Roots	D	X	
<i>Jatropha podagrica</i> *	Leaf	F	Roots	D	X	

Table 1 : Selection of plants/fungi issued from the ethnobotanical survey in Mayotte. Part used, D - Dry or F - Fresh and their expected activity/interest. \* Plant issued from the chemotaxonomical study. \*\* Plant/fungi not yet identified.

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