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Ethnobotany of Anthophyta Varieties as Raw Materials for Candu Oil Production in Tasikmalaya Regency

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Abstrak: Pemanfaatan anthophyta sebagai bahan kosmetik ataupun bahan pengobatan yang dilakukan oleh masyarakat tentunya menjadi kajian penting dalam etnobotani. Praktik etnobotani telah turun temurun dilakukan oleh masyarakat Desa Gunungsari dan masyarakat Desa Cikunir. Masyarakat dari dua Desa tersebut menggunakan anthophyta sebagai bahan yang digunakan dalam pembuatan minyak candu. Penelitian ini bertujuan untuk mendeskripsikan minyak candu serta ragam anthophyta yang digunakan dalam proses pembuatannya. Penelitian ini merupakan penelitian kualitatif. Data dikumpulkan dengan cara observasi, wawancara, dan dokumentasi. Sampel diambil menggunakan teknik *purposive sampling*. Hasil penelitian menunjukan bahwa bagian anthophyta yang banyak digunakan untuk minyak candu yaitu bunga, daun, akar dan rimpang. Terdapat tujuh jenis anthophyta yang diklasifikasikan dalam 2 *class* dan 5 *order*. Jenis anthophyta tersebut adalah *Cananga odorata*, *Magnolia x alba*, *Rosa x damascena*, *Jasminum sambac*, *Plantago major*, *Pandanus amaryllifolius*, *Curcuma longa*. Khasiat yang dirasakan oleh responden sebagai pengguna minyak candu adalah 90%-70% sebagai perawatan kulit kering, 80%-70% untuk pijatan, 60%-50% untuk bekas luka, 55%-35% pengobatan kutu air, 40%-20% untuk iritasi kulit, 30%-25% untuk pembengkakan, 30%-15% untuk stretch mark, dan 20%-15% untuk luka bakar. Kesimpulan yang diambil yakni kandungan yang dimiliki oleh setiap anthophyta bahan minyak candu dapat berpotensi untuk mendukung pengobatan permasalahan kulit.
Kata kunci: Anthophyta; Etnobotani; Minyak Candu.

Abstract: The use of anthophytes as cosmetic ingredients or medicinal ingredients by the community is certainly an important study in ethnobotany. Ethnobotanical practices have been carried out for generations by the people of Gunungsari Village and the people of Cikunir Village. The people of these two villages use anthophyta as an ingredient in making candu oil. This research aims to describe candu oil and the various anthophytes used in the manufacturing process. This research is qualitative research. Data were collected through observation, interviews, and documentation. Samples were selected using a purposive sampling technique. The research results show that the parts of anthophytes that are widely used for candu oil are flowers, leaves, roots and rhizomes. There are seven types of anthophyta which are classified into 2 classes and 5 orders. The types of anthophytes are *Cananga odorata*, *Magnolia x alba*, *Rosa x damascena*, *Jasminum sambac*, *Plantago major*, *Pandanus amaryllifolius*, *Curcuma longa*. The efficacy felt by respondents as users of candu oil is 90%-70% for dry skin treatment, 80%-70% for massage, 60%-50% for scars, 55%-35% for athlete's foot treatment, 40%-20 % for skin irritation, 30%-25% for swelling, 30%-15%

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for stretch marks, and 20%-15% for burns. The conclusion drawn is that the content contained in each anthophyte used as an ingredient in candu oil has the potential to support the treatment of skin problems.
Keyword: Anthophyta; Candu oil; Ethnobotany.

1. Introduction

Local knowledge of the diversity of nutritious plant species and their uses is passed down through generations and enriched by personal experience [1]. Fundamentally, the community's local knowledge or wisdom regarding nutritious plant species, processing methods, utilized plant parts, and various applications represents a valuable cultural asset that must be developed and preserved. The relationship and understanding of the community concerning the use of various nutritious plant species through traditional processing methods are scientifically studied within the discipline of ethnobotany [2].

The discipline of ethnobotany is closely related to human dependence on plants to fulfil their life needs [3]. To this day, many Indonesians still rely on natural traditional recipes for plant-based beauty treatments. One group of plants commonly used for beauty care, particularly for skin health, belongs to the Anthophyta. Anthophyta refers to flowering plants that use flowers as their reproductive structures. These plants are also known as angiosperms because gamete production occurs within the flowers, with ovules enclosed in the carpel [4].

Previous research on the use of Anthophyta as medicinal ingredients and for skin care has been conducted by the community in Tanjung Luar Village, East Lombok Regency. They mixed and mashed white magnolia flowers, yellow magnolia flowers, and bangles to create scrubs that can be applied to the skin [5]. Plants belonging to the Asteraceae, Lamiaceae, Fabaceae, and Apiaceae families are commonly used to treat skin diseases [6].

The use of various plants to treat skin problems is also practiced by several communities in Tasikmalaya Regency, West Java Province, particularly in Cikunir Village, Singaparna District, and Gunungsari Village, Sukaratu District. The people in these villages use Anthophyta to produce candu oil. Candu oil is traditionally processed using recipes passed down through

generations. It takes the form of a yellow ointment. According to residents, candu oil is believed to help treat various skin problems and also serves as a lubricant for relaxation massages.

The people of Cikunir Village and Gunungsari Village also explained that, since ancient times, candu oil has often been used in ritual ceremonies for rice planting and harvesting. This oil is also commonly stored in a special room designated for keeping harvested rice. Additionally, it has become a tradition for residents to apply candu oil to their hands and feet before harvesting rice to reduce stinging and itching. In Sundanese, this condition is called merang, an irritation caused by friction between the skin and rice plants.

Although candu oil has existed for a long time, it remains relatively unknown. This is because its distribution is limited, and knowledge about the medicinal properties of Anthophyta, particularly regarding candu oil, has not been documented. Documenting the use of Anthophyta in traditional skin care and treatment products is essential to prevent this knowledge from being lost. Proper documentation will ensure that future generations can recognize and utilize this ancestral heritage [7].

Given these issues, ethnobotanical research on the use of Anthophyta as ingredients for producing candu oil by the people of Tasikmalaya is crucial to ensure proper documentation of this knowledge. Therefore, this study aims to describe the ethnobotany of Anthophyta varieties used as raw materials for candu oil production in Tasikmalaya Regency.

2. Research Methods

This study employs a qualitative research method with a phenomenological approach. The research was conducted in Cikunir Village, Singaparna District, and Gunungsari Village, Sukaratu District, Tasikmalaya Regency, West Java Province. The object of this study is various Anthophyta species used in the production of candu oil. Data were collected using triangulation techniques, including observation, interviews, and documentation. Interviews were conducted with 20 residents from Cikunir Village and 20 residents from Gunungsari Village. A semi-structured interview

format was used, employing a purposive sampling technique. The interview respondents were categorized into three groups: candu oil producers, sellers, and buyers. Sampling of plant species was based on interview results, followed by direct observation and identification to determine their classification and scientific names. Data validation was conducted through credibility, dependability, confirmability, and transferability tests. The collected data were then analyzed using data reduction, display, and verification techniques.

3. Results and Discussion

a. Overview of Candu Oil

Based on the conducted interviews, it was found that candu oil is applied topically by spreading the ointment on affected skin areas. The appearance of candu oil is shown in Figure 1.

Figure 1. What candu oil looks like

Since ancient times, it has been customary for the residents of Cikunir Village and Gunungsari Village to store candu oil in a rice crate within a special room designated for rice storage. This room is called a goah. As a result, candu oil is often referred to as goah oil.

Figure 2. Chest where rice is stored

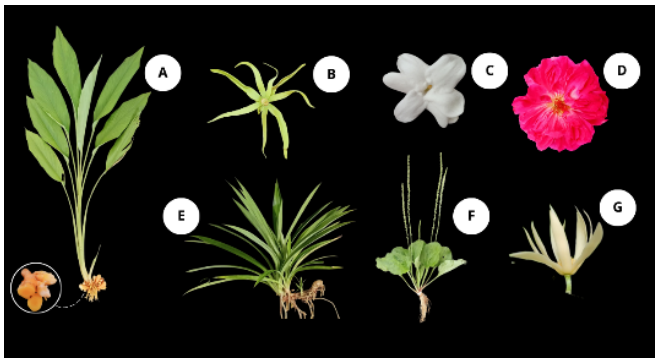

Figure 3. Type of candu oil anthophyta (a). Turmeric; (b). Ylang-Ylang; (c). Jasmine; (d). Rose; (e). Screwpine Leaf; (f). Dignity; (g). Magnolia

The types of anthophyta used in making candu oil are explained in Table 1.

Table 1. Other parts and uses of the type of anthophyta used

Local Name	Scientific Name	Parts used	Other uses besides Candu Oil
Ros	*Rosa x damascena*	Flower	As an ornamental plant, a therapeutic aromatic plant, a ritual item for nyekar (sowing flowers during a grave pilgrimage), a tool used in water for storing hair during shaving, as well as a symbol for naming a newborn
Melati	*Jasminum sambac*	Flower	As an ornamental plant, an aromatherapy plant, and a component for nyekar (sowing flowers during a grave pilgrimage), as well as a decorative element in the bride's headdress
Ylang-Ylang	*Cananga odorata*	Flower	As an ornamental plant, aromatherapy plant, and completeness for nyekar (sowing flowers during grave pilgrimage).

Local Name	Scientific Name	Parts used	Other uses besides Candu Oil
Kiurat	*Plantago major* L.	Flowers, leaves, roots	Medicinal plants
Screwpine Leaf	*Pandanus amaryllifolius*	leaves	Aroma enhancer in cooking
Magnolia	*Magnolia x alba*	Flower	An essential element for nyekar (sowing flowers during a grave pilgrimage)
Turmeric	*Curcuma longa* L.	Rhizome	Spices, medicinal plants, and natural dyes in food

Based on Table 1, it is evident that seven types of Anthophyta are used in the production of candu oil. In addition to being processed into candu oil, these Anthophyta species also serve other purposes.

b. Classification of Anthophyta Used as Ingredients for Candu Oil

The following table presents the overall classification of each type of Anthophyta used in the production of candu oil.

Tabel 2. Classification of Each Anthophyta Used in the Production of Candu Oil.

Kingdom	*Division*	*Class*	*Order*	*Family*	*Genus*	*Species*
Plantae	Tracheophyta	Liliopsida	Pandanales	Pandanaceae	*Pandanus* Parkinson	*Pandanus amaryllifolius* Roxb.
			Zingiberales	Zingiberaceae	*Curcuma* L.	*Curcuma longa* L.
		Magnoliopsida	Lamiales	Oleaceae	*Jasminum* L.	*Jasminum sambac* (L.) Aiton
				Plantaginaceae	*Plantago* L.	*Plantago major* L.
			Magnoliales	Annonaceae	*Cananga* (DC.) Hook. f. & Thomson	*Cananga odorata* (Lam.) Hook.f. & Thomson
				Magnoliaceae	*Magnolia* Plum. ex L.	*Magnolia x alba* (DC.) Figlar
			Rosales	Rosaceae	*Rosa* L.	*Rosa x damascena* Mill. (pro.sp.)

The classification of Anthophyta in Table 2 was determined by comparing the observed plant findings in the field with data from the Global Biodiversity Information Facility (GBIF) website.

c. Efficacy and Frequency of Candu Oil Use

Based on interview results, there are eight categories of benefits experienced by the community in using candu oil. Additionally, candu oil can be used both for daily applications and as needed. The following graphs illustrate the percentage distribution of each benefit of candu oil and the frequency of its use.

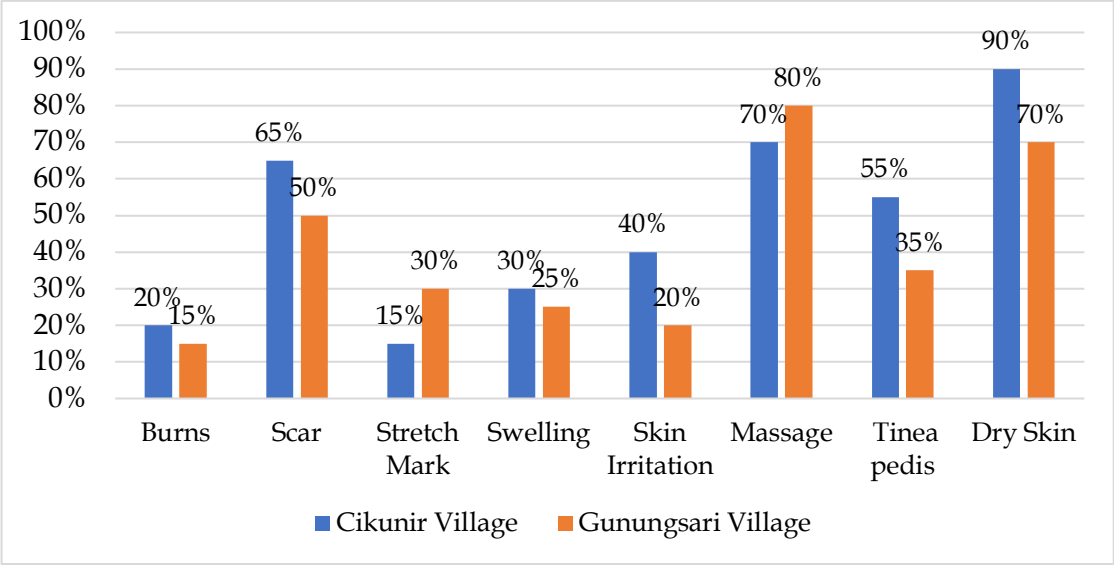

Figure 4. The percentage of each perceived benefit of candu oil by the public

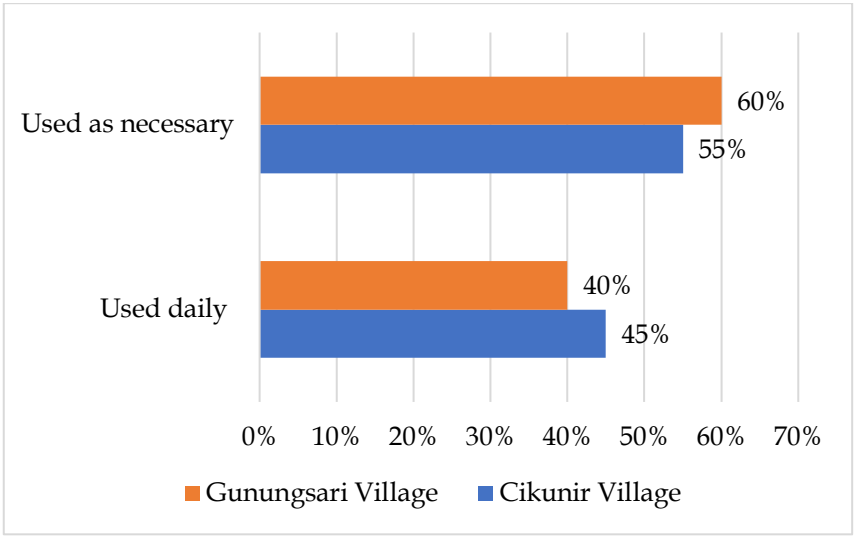

Figure 5. Frequency of Candu Oil Use by the People of Gunungsari and Cikunir Villages

Based on the graph in Figure 4, the most widely recognized benefits of using candu oil are for dry skin problems (90%-70%) and as a relaxation massage lubricant (80%-70%). Additionally, according to the graph in Figure 5, the use of candu oil in both Cikunir and Gunungsari Villages is primarily for occasional, as-needed purposes.

d. Content of each Anthophyta

The following presents the content of each Anthophyta, and other ingredients used to make candu oil. The efficacy and content of each

Anthophyta are outlined in Table 3, based on a literature review of several studies that have been conducted.

Table 3. The Content and Properties of Plants Used as Ingredients in the Production of Candu Oil

Plant Name	Benefit	Contents
Ylang-Ylang	Anti-inflammatory	Flavonoids and Saponins [8].
	Antioxidants	Hydrocarbon sesquiterpenes such as caryophyllene, oxygenated sesquiterpenes such as linalool. Benzyl Benzoate [9].
	Antibacterial	n-butanol [10].
Red roses	Antioxidants	Tannin, geraniol, nerol, citronellol, assam geraniol, terpene, flavonoid, pectin polyphenol, vanillin, carotenoid, stearoptene, farnesol, eugenol, phenethyl alcohol, vitamin B, C, E, from K to Pygmen anthosianin (cyanidine in glycocy, peanidine in glycocy, peanidin in glycocy, malvidin in glycocy, pelargonidin in glycocy) [11].
	Antifungi	Cuercetin and kaempferol [12].
	Antibacterial	Tannin, geraniol, nerol, citronellol, dan flavonoid [13].
	Aromatherapy	muurolene, isomenthone, α- himachalene, linalool, α-pinene, phenethyl alcohol, citronellyl formate, βcitronellol, citronellol asetat, geraniol, geranyl asetat, nerol, n-hexyl asetat, αmyrcene, eugenol, dan neroli alkohol [11].
Jasmine	Antibacterial	flavonoid (katekin), tanin, alkaloid, saponin [14].
	Antifungal	Ethanol [15].
	Antioxidant	Catechins are one of the polyphenol compounds in the flavonoid group [16].
	Aromatherapy	z-jasmone, benzil benzoat, indol, linalool, dan neurolidol [17].
Magnolia	Antibacterial Anti-inflammatory	Linalool, 1,6-Octadiene-3 ol,3,7-dimethyl, phenyl alcohol, epoxylinalol, from butannoate,3-methyl,2-phenylethyl ester [18].
Screwpine Leaf	Antioxidant	Alkaloid, flavonoid, saponin, tanin, vitamin C, Vitamin E, polifenol [19].
Kiurat	Heals wounds, burns, Anti-Inflammatory and Antioxidant	Flavonoid, terpenoid, alkaloid, asam lemac, glycoside iridoid, dan polysaccharide [20]. Tannin, Vitamin B1, B2, B3, Vitamin C [21].
Turmeric	Antifungal Antibacterial	Curcumin, flavonoids, and essential oils [22].
Coconut oil	Moisturizes the skin and its Antiviral properties	Capric acid and lauric acid [23].
Night candles	Cosmetic and ointment base ingredients	Paraffin Wax/Lilian Paraffin (CnH2n+2) [24].

Based on Table 3, several ingredients found in the Anthophyta of candu oil have the potential to support various benefits for skin health, according to the experiences shared by the respondents (residents of Cikunir Village and Gunungsari Village). The ingredients in candu oil that contribute to its benefits,

such as the limonene content in red roses (*Rosa x damascena*), can aid in treating skin burns and have an analgesic effect [10]. Additionally, the flavonoids and vitamin B2 (riboflavin) found in Plantago major can help treat second-degree burns [20]. Furthermore, turmeric ethanol extract has antifungal properties against Trichophyton rubrum, which causes tinea or ringworm [25]. The alkaloids, saponins, and tannins in turmeric can assist in exfoliating the skin and removing smallpox scars caused by the Varicella zoster virus [21]. Lastly, screwpine leaves, jasmine flowers, roses, and coconut oil contain ingredients that act as natural moisturizers for the skin.

e. Source of Anthophyta Procurement

The Anthophyta used to make candu oil is obtained through cultivation, the surrounding environment, and buying and selling transactions. The Anthophyta acquired from cultivation include *Rosa x damascena, Jasminum sambac, Cananga odorata*, and *Pandanus amarillifolius*. The Anthophyta obtained from the surrounding environment is Plantago major. The Anthophyta sourced through buying and selling transactions is *Magnolia x alba. Magnolia x alba* is procured through transactions because this plant is rarely found growing near Cikunir Village or Gunungsari Village, so to obtain *Magnolia x alba* flowers, candu oil makers must purchase them from rampe traders, who specialize in selling flowers for grave pilgrimages.

4. How to Make Candu Oil

Candu oil is processed using a simple method. The tools required are knives, pans, stoves, spatulas, strainers, and small jars. The ingredients used include jasmine flowers, roses, Magnolia flowers, ylang-ylang flowers, screwpine leaves, Plantago major, and turmeric rhizomes. Additionally, other ingredients include coconut oil and paraffin wax. Once the tools and ingredients are prepared, the plants are washed, then cut into small pieces, and the paraffin wax is added to the slices. Mix the sliced paraffin wax and Anthophyta in a pan, then add the coconut oil. Afterward, heat it over medium heat, strain it, and place it in a jar.

5. Conclusion

Candu oil is an ethnobotanical product made by several residents in Tasikmalaya Regency, particularly in Cikunir Village and Gunungsari Village. The most used parts of the Anthophyta to make this oil are the flowers, leaves, roots, and rhizomes. Candu oil is made from seven types of Anthophyta, which belong to 2 classes and 5 orders. Each ingredient contains beneficial compounds that contribute to the oil's effectiveness for massage, relaxation, and skin health care.

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