

Short Communication: Traditional medicinal formulation: *Obat pahit* from Lingga Malay Ethnic in Riau Archipelago, Indonesia

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Abstract. *Fitmawati, Sofiyanti N, Roza RM, Isnaini, Hazimi H, Irawan YS, Winata DR, Dewi APK. 2017. Traditional medicinal formulation: Obat pahit from Lingga Malay Ethnic in Riau Archipelago, Indonesia. Biodiversitas 18: 1196-1200.* Lingga Malay Ethnic is the native ethnicity in the Lingga District, Riau Archipelago, Indonesia. This ethnic still holds strong beliefs of their ancestors, such as the use of medicinal plants. One ingredient that is still used today is *obat pahit* as a body fitness keeper. The aim of this research was to inventory the kinds of medicinal plants used by Lingga Malay ethnicity in *obat pahit* potions. This research was conducted using survey and observation methods on the packaging of *obat pahit*. Interviews were held on Traditional Medicine Practitioners (TMP) of 5 (five) people TMPs using a questionnaire form. The research results during the interview and observation of TMPs in the packaging of *obat pahit* showed the differences in number and kinds of plants of each TMP. The interview results which were obtained 2 plant species were listed from Kalan TMP; SP4 TMP is about 12 species of plants; Linau TMP is 14 species of plants; Resun TMP is 7 species of plants; and Musai TMP is 14 species of plants. The dominant medicinal plants that are used on this study were *Bauhinia semibifida*, *Cnestis* sp. and *Cnestis palata*.

Keywords: Lingga Malay Ethnic, *obat pahit*, traditional medicine

INTRODUCTION

Changes in lifestyle for today's modern society have been increasing the risk of degenerative diseases. There are around 50 degenerative diseases that arise as a result of degeneration of body cells functions in normal circumstances, such as *diabetes mellitus*, stroke, coronary heart disease, cardiovascular disease, obesity, and dyslipidemia, which have become a common problem in public health. Dietary and lifestyle are often blamed as the strong cause of the incidence of degenerative diseases (Pourmorad et al. 2006). WHO and FAO (2004) estimate that nutritional factors are responsible for 60% of cancer cases in women. Additionally, high consumption of sugar and carbohydrates triggers diabetes either at diabetes carrier or a new patient. Excessive consumption of animal fat also triggers the emergence of heart disease and blood vessels (Canon and Braunwald 2012). According to the WHO (2003), 17.5 million (30%) of the 58 million deaths in the world is caused by heart disease and blood vessels in 2005.

The traditional medicine plays an important role in health care of tribal, rural and urban people for all types of ailments. As herbal use becomes more common worldwide, ethnobotanical researches can provide insight into other medical systems that differ from the biomedical model

(Ososki et al. 2002). Trend in the use of traditional medicine is increasing with the following data: 27.2% of cardiovascular, respiratory infections 15.3%, digestive and tonic 14.4%, hypnotics/sedatives 9.3%, topical 7.4%, and others 12% (Arcury et al. 2007). Furthermore, there is a trend of *back to nature* encouraging people to be aware of the importance of the use of natural products for health (Martin 1995; Pokorny et al. 2001; Prior 2003).

Knowledge of herbal medicine and mixed herbal potions originally came from the knowledge of local community gained inadvertently as indigenous knowledge and developed by generations (Marianne et al. 2016), and becoming the basis of the development of traditional medicine and herbs which is obtained from around the communities or ethnicities (Jalius and Muswita 2013; Fabio et al. 2016) who have long histories of interaction with the natural environment (Ahyat 2012; Balangcod and Balangcod 2011; Fitmawati et al. 2016).

The Lingga Malays ethnicity has been residing in the Lingga District, Riau Archipelago, for centuries. Lingga Malay is the ancestor of the Malay tribes from Malaya peninsula which is associated with Bugis society (Jamal and Idris 2014). In the 18th century, Lingga Malay kingdom had been reaching its peak (Government of Lingga District 2013) including the culture of treatments.

This indigenous knowledge is preserved until now. It is because of the region of Lingga is geographically isolated, so the medicine need for people was mostly fulfilled with medicinal ingredients harvested directly from nature. High dependence on forests ecosystem makes the contents of this area well preserved.

Malay civilization has been known for ages as one of ancient civilizations that maintain the tradition from generations to generations, including the use of traditional medicine. One of the traditional herbal medicines that are still existed for ages in this ethnicity is "*obat pahit*" as a "*body energy keeper*" (immunomodulators) (RISTOJA 2012). Immunomodulator is a drug which can treat and repair damaged immune system or revive the imbalanced immune system (Baratawidjaja 2002).

This herb is believed by local communities as an ingredient of anti-aging. It is, therefore, necessary to have an empirical evidence in the development of *obat pahit*/boiling drugs for commercial purposes and to improve the product value in Lingga Malay community. Every village in the district has a Traditional Medicine Practitioner (TMP) who still mixes *obat pahit* ingredients with various medicinal plants according to their inherited knowledge (RISTOJA 2012) Difference of villages and geographical knowledge of TMPs enable the existence of different amount and type of ingredients used in potions. The most important step to be done is to inventory and compare the plant species used in *obat pahit* at each TMP.

The study of Ethnomedicine is basically to understand the culture of the health on a community perspective (*emic view*), especially a medical system that has been a tradition for generations. If the knowledge stored in the older generation is not documented, or, the death of traditional medicinal practitioners, or the problems of deforestation that swipe away the traditional medicinal plants, then the plants and the associated knowledge within them will be

irretrievably lost. This study was aimed to determine and compare the medicinal plant species in *obat pahit* used by TMPs in several sites of Lingga District, Riau Archipelago.

MATERIALS AND METHODS

Characterization of Lingga Malay Ethnic

The people of the Lingga Malay Ethnicity are the so called "*daik*". Daik is a town located on the Lingga island, which now belongs to the Lingga District, Riau Archipelago, Indonesia. Lingga Islands is a cluster of islands in Riau Archipelago, in the south and in the east of the Sumatra Island. Around two centuries ago, this area was once the center of the Malay kingdom, the kingdom of Riau Lingga. The origin of the Malay in Lingga kingdom was centered in the city of Daik as a State Sultanate of Johor-Pahang-Riau-Lingga. At this time, it has highly developed in the field of religion and economics in Daik, so Daik Lingga at that time were the center of trade and knowledge. Many traders who came there were from China, Bugis, Siak, Pahang, etc. Livelihoods of this tribe are farmers, tin mining, and fishing. Daik Lingga ethnicity is scattered in some villages of Lingga District (Government of Lingga District 2013).

Study area

The research about *obat pahit* formula from Lingga Malay ethnicity was conducted in Lingga Districts, Riau Archipelago, Indonesia. It is located at 00° 15'S latitude and 104° 32'E longitude with 43m elevation. Lingga District consisted of 9 subdistricts and 66 villages. Five villages are found to use the *obat pahit*. That is Kalan Village, SP4 Village, Linau Village, Resun Village, and Musai Village.



Figure 1. The map of study area in Lingga District, Riau Archipelago, Indonesia

Sampling techniques and sample size

To obtain the related data, researchers conducted a qualitative research method of collecting data through interviews and exploration as well as identification of plants. Interviews were conducted in August 2016 to 5 (Five) TMPs living in the Lingga District who are responsible for mixing *obat pahit* ingredients of Kalan Village, SP4 Village, Linau Village, Resun Village, and Musai Village. Exploration was conducted along TMPs in research field to collect plants used in *obat pahit*. Identification of plants was done in Botanical Laboratory, University of Riau, Pekanbaru, Indonesia.

Data analysis

The inventory of the numbers and species of medicinal plants used by TMPs from Lingga is represented in the table and the analysis data followed the method of Cheikhoussef et al. (2011) with *Fidelity Levels* (FL). FL was used to determine the most important plant species used by the informants for certain preparatory methods (Alexiades 1996; Kim and Song 2011; Song et al. 2013). The FL was calculated using the following formula:

$$FL (\%) = N_p/N \times 100\%$$

Where:

N_p is the number of informants that mentioned the specific plant species used in certain preparatory methods, and N is the total number of the informants who utilized plants as materials for any given preparatory method.

RESULTS AND DISCUSSION

The most important commercialized plant species

Twenty four plant species were listed by the 5 Traditional Medicine Practitioners (TMP) (Table 1). Two plant species were listed from Kalan TMP; from SP4 TMP is about 12 species of plants; from Linau TMP is 14 species of plants; from Resun TMP is 7 species of plants; and from Musai TMP is 14 species of plants. Based on the identification of plants in each TMP, it is also obtained that the high Fidelity Value of plants were *Bauhinia semibifida* (100%), *Cnestis palala* (80%), *Cnestis* sp. (80%), *Syzygium aromaticum* (60%), *Rhodomyrtus tomentosa* (60%), and *Eurycoma longifolia* (60%) (Table 1). Fidelity Value is a percentage use of same medicine plants by TMP in the formulation of *obat pahit*.

Discussion

The use of plants for traditional medicine is established in all indigenous societies in the world. In Lingga District, the knowledge is an intrinsic typical among the indigenous groups and is inherited from their great ancestry by oral communication. In the study, the relationship between the Lingga Malay ethnic and plants is demonstrated in *obat pahit* formulation. *Obat pahit* is one of potions that are commonly used by Lingga Malay society as a body fitness keeper (RISTOJA 2012). This potion was mixed in boiling water and consumed as a daily beverage. The boiling herbal water has a bitter taste; it is therefore known as *obat pahit*. *Obat pahit* consists of several potential

Table 1. Plant species in *obat pahit* and their growth scale

Plant Species	Family	Vernacular name	Plant part used	TMP Kalan	TMP Sp4	TMP Linau	TMP Resun	TMP Musai	FL (%)
<i>Allium sativum</i>	Amaryllidaceae	Bawang putih	Fruits	-	-	-	√	√	40
<i>Archangelisia flava</i>	Menispermaceae	Sekunyit	Roots	-	-	-	-	√	20
<i>Bauhinia semibifida</i>	Fabaceae	Sebaju/Kangkang katup	Roots	√	√	√	√	√	100
<i>Boesenbergia rotunda</i>	Zingiberaceae	Temu kunci	Rhizomes	-	√	√	-	-	40
<i>Cinnamomum sintoc</i>	Lauraceae	Medang lawang	Leaves	-	-	-	√	√	40
<i>Cnestis palala</i>	Connaraceae	Akar tujuh lapis	Roots	√	√	√	√	-	80
<i>Cnestis</i> sp.	Connaraceae	Penawa/penawa lapis	Roots	-	√	√	√	√	80
<i>Coriandrum sativum</i>	Apiaceae	Ketumbar/Sahang	Seeds	-	-	-	-	√	20
<i>Cryptocarya densiflora</i>	Lauraceae	Medang balik angin	Roots	-	-	-	-	√	20
<i>Curcuma zanthorrhiza</i>	Zingiberaceae	Temulawak	Rhizomes	-	√	-	-	-	20
<i>Eurycoma longifolia</i>	Simaroubaceae	Pasak bumi	Roots	-	√	√	-	√	60
<i>Helicteris isora</i>	Sterculiaceae	Cabe pintal	Fruits	-	-	√	-	√	40
<i>Ilex cymosa</i>	Aquifoliaceae	Mensire	Roots	-	-	-	√	-	20
<i>Mussaenda pubescens</i>	Rubiaceae	Balek adab	Leaves	-	-	-	√	-	20
<i>Piper retrofractum</i>	Piperaceae	Cabe jawa	Fruits	-	-	-	-	√	20
<i>Rhodomyrtus tomentosa</i>	Myrtaceae	Kemunting	Roots	-	√	√	-	√	60
<i>Syzygium aromaticum</i>	Myrtaceae	Cengkeh	Flowers	-	√	√	-	√	60
<i>Syzygium aromaticum</i>	Myrtaceae	Cengkeh	Leaves	-	√	√	-	-	40
<i>Syzygium oleana</i>	Myrtaceae	Akar mengkasih	Roots	-	-	√	-	-	20
<i>Usnea barbata</i>	Usneaceae	Taek angin	Roots	-	√	-	-	√	40
<i>Zingiber officinale</i> var. <i>rubrum</i>	Zingiberaceae	Halia bare	Leaves	-	-	√	-	-	20
-	Clusiaceae	Kulit keteng	Bark	-	√	√	-	-	40
-	Fabaceae	Seba	Leaves	-	√	√	-	-	40
-	Fabaceae	Seba	Roots	-	-	√	-	√	40

plants indicated as a drug. All these medicinal plant species are collected by local communities from the surrounding areas and forest.

A total of 24 medicinal plant species is found in traditional medicinal formulation in *obat pahit*. The fidelity level (Table 1) is a useful tool for identifying the TMPs' most preferred plant species and its preparatory methods. FL values vary from 0.6% to 100%. Generally, an FL of 100% for a specific plant indicates that the plant is being used by all TMPs in the same way. This research classifies one species of *Bauhinia semibifida* plants with fidelity levels of 100%, even without considering plants that were mentioned only once for better accuracy. These TMPs mean that they have a tendency to rely on one specific plant species with one preparatory method than several preparatory methods (Song et al. 2013).

Based on Table 1, it can be seen that each TMP has a different plant species in their *obat pahit*. This proves that *obat pahit* is not a standard protocol in their mixtures; it means that the formulation of medicinal plant ingredients has not been standardized yet. The method of preparation in *obat pahit* varies depending on the process and place. Different number of plant was obtained from an interview due to many factors such as knowledge about *obat pahit* formulation which is owned by each TMP who composed it verbally or which was passed orally from their ancestors, different geographical position of each TMP causing the differences of plant species used in *obat pahit* formulation. However, the substitute plants have the same ability to cure.

The usage of decoction method is by mixing all parts of plants which are recommended by TMPs like roots, bark, leaves, flowers, fruits that have been dried in advance. After being boiled, *obat pahit* potions are ready to drink. The dosage given to the patient depends on age, physical status and health conditions of the patient.

In *obat pahit* formulation, there are some plants used by most of TMP, namely *Bauhinia semibifida*, with the measurement of 163 g at Kalan village; 99.65 g at SP4 village; 98.5 g at Linau village; 28.8 g at Resun village and 42.75 g at Musai village; *Cnestis palala* with the measurement of 20 g at Kalan village; 3 g at SP4 village; 90.3 g at Linau village and 36.9 g at Resun village; and *Cnestis* sp. with the weight of 112.03 g at SP4 village; 343 g at Linau village; 173.4 g at Resun village and 55.1 g at Musai village. These three plant species are estimated to have a high antioxidant activity which is useful in taking care of body fitness of inhabitants (Zuhra 2008) of society of Lingga Malay ethnicity, while the other plant species are only complementary.

Therefore, this study is needed to be done to have a better understanding of advanced study about antioxidant test to know the antioxidant activity of the three plant species namely *Bauhinia semibifida*, *Cnestis palala* and *Cnestis* sp. The result of research by Tanjung et al. (2014) indicated that genus of *Bauhinia* has high antioxidant activity. The results suggested that *Cnestis palala* is a great potential source of anti-microbial agents (Adisai et al. 2015). *Cnestis palala* and *Cnestis* sp are species that are

originated from the same genus, but they have different color of the wood, i.e. the color on a *Cnestis palala* is red, while and the color on *Cnestis* sp is white.

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