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1
To cite this article: F Husain *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **743** 012019

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Ethnobotanical knowledge on jamu herbal drink among consumer in Semarang

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Abstract. Jamu is an herbal drink made from various types of medicinal plants. Jamu is very popular in Indonesia, especially for Javanese people. This herbal drink is considered a natural healthy drink to treat diseases and keep the body healthy if consumed continuously. This study explores about knowledge of jamu and medicinal plants consumed daily by consumers of the Jamu Ngadirgo in Semarang. In this study, the authors used qualitative research methods. Data were collected by using observation and interview technique. There were 21 informants who are also consumers of Jamu Ngadirgo who participated in this research. In this study, there were eight types of jamu that are commonly consumed daily by consumers. The types of jamu Ngadirgo Semarang are cabe puyang, kunir asem, beras kencur, temulawak, pahitan, surih/sirih, kunir kentel, and wejahan. There are 13 species of medicinal plants from 8 families used as ingredients to make jamu, as well as two non-plant ingredients that were mixed. However, the consumers could only mention 8 of 13 species of medicinal plants commonly used in herbal medicine. They are cabai jawa, kencur, kunyit, temulawak, asam jawa, brotowali, sambiroto, and sirih. Some parts of plants as medicinal ingredients consist of roots, leaves and rhizomes. Non-plant ingredients that are mixed in making herbal medicine are palm sugar and salt.

1. Introduction

In Indonesia, medicinal plants are commonly used by people as ingredients for traditional medicines. Utilization of plants as medicine is supported by the environment in which Indonesia is one of the countries that have an overflowing biodiversity, including plants. According to the Royal Botanic Garden, Kew's report [1], that there are 28,187 species of plants used as traditional plant-based medicines in the world. Whereas in Indonesia, there are more than one thousand species of plants that have the potential to become medicinal ingredients, and only 300 species are commonly used in traditional medicine.

The utilization of plants in the tradition of medicine in Indonesia is also commonly referred to as herbal medicine and as called jamu. Jamu is herbal drink made using natural ingredients. The term of jamu as written in Minister of Health Regulation No.003 / Menkes / Per / I / 2010 [2] is a traditional medicine which includes plant ingredients mixed with other ingredients that have been used for generations for treatment and are applied in accordance with the norm prevailing in the community. In more detail, the components of herbal medicine come from plants that are still fresh, by taking only certain parts of plants, such as roots, leaves, fruit, and mixed with several other ingredients [3], [4]. Although general the herbal medicine is identical to Javanese culture as found in the Serat Husodo (Java) or Serat Primbon Jampi, Serat Racikan Boreh Wulang Dalem, but in other places in Indonesia,



there is also traditional knowledge about traditional medicine using plants based on old manuscripts, for example, Usada in Bali and Lontarak Pabbura in South Sulawesi [5]. Herbal medicine is still believed to be a panacea to treat various diseases and has even been developed in the modern industry [6].

Research references on herbal medicine as in Torri's study [7] concerning traditional herbal medicine in Yogyakarta. Torri explained that the herbal medicine consumer community knows local medicine using herbs with different age groups and levels, both in educational and socio-economic backgrounds. Margot Lyon mentions that herbal medicine can be prepared at home. Still, at this time, many people lack the time and lack of skills in concocting herbal medicine, so people usually buy at jamu sellers. The sellers will go around the village and apply a door to door marketing method.

This study aims to understand the ethnobotany knowledge of medicinal plants as medicinal ingredients commonly consumed by herbal consumers in Kota Semarang.

2. Methods

This study used a qualitative approach to understand informant's knowledge and experience [8], [9]. The informant's knowledge and experience are in the form of medicinal plants that are consumed daily, specially bought from jamu sellers. Data collection techniques were carried out by observation and interview. The number of informants who participated in this study was 21 jamu consumer, especially for the typical Jamu of Ngadirgo Semarang.

3. Result and Discussion

3.1. Ethnobotanical Knowledge of jamu by consumers

Traditional herbal medicine continues to this day as an herbal drink that has many benefits. Herbal medicine is used to maintain health and cure disease. There are eight types of herbal medicine typical of Ngadirgo Semarang, which are commonly consumed by consumers, namely cabe puyang, kunir asem, beras kencur, temulawak, pahitan, suroh/sirih, kunir kentel, and wejahan.

Consumers widely know the ethnobotanical knowledge of medicinal plants used as ingredients for jamu. This knowledge generally comes from their parents, so it can be said that the knowledge of herbs and medicinal plants is a legacy of hereditary culture.

In this study, it was also found that herbal medicine consumers were not able to mention in detail the ingredients of medicinal plants used in making jamu. Besides, there are also non-plant ingredients that are mixed in making jamu. The consumer's knowledge of jamu types and its components can be summarized in the following table:

Table 1. Types of jamu and ingredients

No	Types of Jamu	Ingredients			Non-plant ingredients
		Plants	Scientific names	Part used	
1	Cabe Puyang	Cabai Jawa (<i>Piper retrofractum</i>)	<i>Piperaceae</i>	Fruit	Salt
		Lempuyang (<i>Zingiber zerumbet</i>)	<i>Zingibericeae</i>	Rhizome	
2	Kunir Asem	Kunyit (<i>Curcuma domestica</i>)	<i>Zingibericeae</i>	Rhizome	Salt and brown sugar
		Asam Jawa (<i>Tamarindus indica</i>)	<i>Fabaceae</i>	Fruit	
3	Beras Kencur	Beras (<i>Oryza sativa</i>)	<i>Graminae</i>	Fruit	Salt and

		Kencur (<i>Kaempferia galanga</i>)	<i>Zingibericeae</i>	Rhizome	brown sugar
4	Temulawak	Temulawak (<i>Curcuma chantorriza</i>)	<i>Zingibericeae</i>	Rhizome	Salt and brown sugar
5	Pahitan	Bratawali (<i>Tinospora rumphii</i>)	<i>Menispermaceae</i>	Stem	Salt
		Sambiroto (<i>Andrographis paniculata</i>)	<i>Acanthaceae</i>	Leaf to root	
6	Suroh/Sirih	Sirih (<i>Piper Betle</i>)	<i>Piperaceae</i>	Leaf	Salt
7	Kunir Kentel	Kunyit (<i>Curcuma domestica/ Curcuma longa</i>)	<i>Zingibericeae</i>	Rhizome	Salt
8	Wejahan	Daun Luntas (<i>Pluchea indica</i>)	<i>Asteraceae</i>	Leaf	Salt
		Ceplikan (<i>Eucalyptus alba reinw</i>)	<i>Myrtaceae</i>	Fruit	

The table above shows the various ingredients used to make traditional herbal medicine. The ingredients for making traditional herbal medicine are classified into two types, namely medicinal plant material and non-plant material. First, a material derived from plants is produced from plant parts, namely roots, rhizomes, leaves, and fruit. Some types of plant ingredients mentioned in the table cannot be explained in detail by consumers. Species of plants mentioned by jamu consumers are as follows:

3.1.1. Cabai Jawa (*Piper retrofractum*)

11

Cabai Jawa or Javanese chili is one of the medicinal plants used as the primary ingredient of making jamu. Cabai Jawa has the characteristics of its small size and red color. Parts used as ingredients are the dried fruit because it gives a spicy flavor to the jamu. Cabai Jawa is usually used as an ingredient for making a typical jamu called cabe puyang. The Javanese chili is made by pounding it using a simple tool called 'alu' (a traditional pounding tool made from stone). After being smooth, the cabai jawa is boiled and mixed with other plants and salt to make cabe puyang.



Figure 1. Cabai Jawa (*Piper retrofractum*).

3.1.2. Kencur (*Kaempferia galanga* L.).

Kencur is one of the ingredients used to make jamu beras kencur. The kencur part that is used in jamu is rhizome. As an ingredient, kencur is processed by pounding it. Another components mixed in kencur rice is herbal rice that has been fried, then added brown sugar and salt.



Figure 2. Kencur (*Kaempferia galanga* L.).

3.1.3. Kunyit (*Curcuma domestica*).

Kunyit or turmeric (*Curcuma domestica*) is a type of plant that belongs to the group of gingers or the family Zingiberaceae. In Java, it is also called kunir. Turmeric is one of the essential ingredients for the making of jamu kuyit asem. Rhizome is the primary part in the making jamu and has a characteristic of yellow color. Just like cabai jawa, making turmeric as a medicinal ingredient is by pounding until smooth, or it can also be grated, then mixed with boiled water, tamarind, and salt.



Figure 3. Kunyit (*Curcuma domestica*).

3.1.4. Temulawak (*Curcuma xanthorrhiza*)

Temulawak or curcuma is a type of plant that belongs to the tribe of findings or Zingiberaceae. Temulawak is also one of the ingredients used to make jamu temulawak. The part of the plant that is used as ingredients for herbal medicine is the rhizome. It is usually processed by boiling or slicing into small pieces, then added with brown sugar, and salt.



Figure 4. Temulawak (*Curcuma xanthorrhiza*).

3.1.5. Asam Jawa (*Tamarindus indica*)

Asam Jawa or tamarind (*Tamarindus indica*) is a plant that belongs to the Fabaceae family. Tamarind is the main ingredient for producing of jamu kunir asam (turmeric tamarind). It is called as kunir asam because the concoction consists of two main components, the mixture of turmeric and tamarind. Parts of plants used as ingredients for jamu are fruit. According to the informant, sour or sour taste produced by tamarind gives a sense of freshness to the body. The sour taste produced from tamarind has become one of the characteristics distinguishing turmeric tamarind from other herbs. Tamarind used as a medicinal ingredient is one that is already dry. In making it, the tamarind washed and then boiled with grated turmeric that has been refined. Turmeric herbal tamarind is a suitable type of jamu for women's health, so the majority who take jamu kunir asam are female.



Figure 5. Asam Jawa (*Tamarindus indica*).

3.1.6. *Bratawali (Tinospora rumphii)*.

The Javanese people commonly know Bratawali as brotowali (pronunciation of 'o' in Javanese). This Brotowali belongs to the Menispermaceae family. The community knows Brotowali as the main ingredient for making jamu pahitan. Part of the plant that is used as herbal medicine is the stem. According to the consumer community, brotowali has a distinctive taste that is very bitter. This bitter taste is then used to be the primary ingredient of making pahitan. Even the bitter taste in pahitan makes people suggest to recover from their illness quickly.



Figure 6. Bratawali (*Tinospora rumphii*).

3.1.7. *Sambiroto (Andrographis paniculata)*.

Sambiroto (*Andrographis paniculata*) is a medicinal plant belonging to the family Acanthaceae. Sambiroto is a medicinal ingredient that is usually mixed with brotowali to make jamu pahitan. Parts used as ingredients for herbal medicine are on the leaves. Sambiroto leaves are small in shape. For making herbal drink o jamu, sambiroto is usually boiled with Brotowali. Like brotowali, sambiroto also produces a bitter taste. With this bitter taste, add flavor to the bitterness herbs that have many health benefits.



Figure 7. Sambiroto (*Andrographis paniculata*).

3.1.8 Daun Sirih (*Piper Betle*).

Daun sirih or betel leaf (*Piper Betle*) is a type of plant that enters the Piperaceae family. By its mention, the plant parts used as ingredients for herbal medicine are the leaves. This leaf is used as material for making betel traditional herbal medicine. Betel leaf made for medicinal ingredients is processed by pounding and boiling. Jamu sirih has green color, like the color of the leaves.



Figure 8. Daun sirih (*Piper Betle*).

3.2. How consumers obtain the jamu ingredients

Based on interviews with Ngadirgo Semarang herbal consumers, the types of plants as medicinal ingredients can be obtained in two ways, by growing their own in the home yard and buying in the market. The community usually grows their medicinal plants in the environment around the house yard, fruit plants to grow in pots or other container (Indonesian term is tabulampot), or even in the garden. In interviews with consumers of jamu, some plants are planted in the surrounding the house, such as lempuyang, kencur, and kunir. Medicinal plants that are usually planted at home are rhizomes, plants with trees that are not too large, so they do not require large tracts of land. With the ease of growing medicinal plants on their farm, so that people can use them at any time as needed. By planting herbs, they are considered cheaper and more practical because they do not need to buy medicinal materials on the market.



Figure 9. Some jamu ingredients in the local market vendor.

The second way is to buy in the local market. Not only by growing medicinal plants independently at home, medicinal ingredients for making traditional herbal medicine are also available in local market vendor. According to the consumers of jamu, ingredients plants are very easy to find in the local market, specially in particular vendor that sell spices for food. It is also because some ingredients are also used as a daily food seasoning. Herbal ingredients that are sold in local market vendor such as lempuyang and cabai jawa. The ingredients of the herbal medicine are wrapped in small plastic containers and sold at low prices. The estimated price of each packet of herbal medicine ingredients ranging from Rp1,000 to Rp3,000 With the availability of medicinal ingredients at the stall, it is easy for the community to obtain medicinal ingredients and make their own jamu at home.

4. Conclusions

Based on research, the consumers of traditional jamu Ngadirgo Semarang know only eight of the 13 types of medicinal plants in jamu, which they are consumed daily. The plants are cabai jawa (Javanese chili), kencur (aromatic ginger), kunyit (turmeric), temulawak (Javanese ginger/turmeric), asam jawa (tamarind), brotowali (heart-leaved moonseed), sambiroto (green chireta) and sirih (betel). Some of these herbal ingredients can be obtained by planting around the house and buying at the local market.

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