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Research Article

ETHNO PHARMACEUTICAL STUDY OF MEDICINAL PLANTS IN KEERA SUB-DISTRICT, WAJO DISTRICT, SOUTH SULAWESI

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ABSTRACT

Medicinal plants have long been used by people in Indonesia as an alternative treatment for diseases. Keera Sub district is one of the areas in Wajo Regency, South Sulawesi Province inhabited by Bugis ethnicity also uses medicinal plants to treat various diseases. This study was conducted with the aim of knowing the types of medicinal plants used by the people of Keera District to treat diseases. The research was conducted by surveying ethno pharmaceutical plants through traditional healers, community leaders and people who have knowledge about medicinal plants with a purpose sampling method. The results obtained 32 families and 50 species of ethno pharmaceutical plants to treat diseases used singly or as a concoction.

Keywords: Ethno pharmacy, Medicinal Plants, Keera District, Bugis Tribe.

INTRODUCTION

Indonesia is an archipelago that has the second largest tropical forest in the world with biodiversity and is known as one of the "mega biodiversity" countries second only to Brazilia (Ersam, 2004). It is estimated that Indonesia's forests hold 30,000 species of potential medicinal plants, of which 940 species have been declared medicinal, 78% are still obtained through direct collection from the forest (Nugroho, 2010). The utilization of medicinal plants and traditional medicine is still carried out by the community by utilizing plants as ingredients and concoctions of drugs. Medicinal plants are plants that one or all parts of the plant contain active substances that are efficacious for health that can be used as a cure for disease. Medicinal plants are types of plants that in certain parts of the roots, stems, skin, leaves and excreta are believed to cure or reduce pain.

One approach that can be used to explore the local knowledge of a community regarding the use of plants as medicine is ethno pharmaceuticals. Through this study, it is possible to trace traditional medicinal ingredients, and how they are used as cultural characteristics in a particular community (Ningsih *et al.*, 2016).

The utilization of medicinal plants as traditional medicine by the people of Keera sub-district has been carried out from generation to generation and based on experience, for this reason ethno pharmaceutical research was conducted with the aim of directly knowing the utilization of medicinal plants by the people of Keera sub-district. This is also an effort to increase the tradition of consuming traditional medicine, especially among the younger generation. The relationship between society and traditional medicinal plants in the field of medicine is called ethno pharmacy.

Keera sub-district consists of several villages, which have resources, uniqueness, and distinctiveness of biodiversity. One of the biodiversity is the diversity of medicinal plants. The utilization of

plants as medicine is actually a tradition and hereditary that has been done by the community. So that the potential utilization of plants as medicine needs to be researched for the benefit of health and scientific development. Based on this situation, it is necessary to conduct an ethno pharmaceutical study of plants with medicinal properties in Keera sub- district.

RESEARCH METHODS

Research Procedure

1. Making Questionnaires (Interview guidelines)

Questionnaire is a data collection instrument in observational research. With the questionnaire, researchers extract information from respondents (people who are the subject of research). The type of questionnaire is descriptive (in this case a description of ethno pharmaceutical plants).

2. Questionnaire Distribution

The questionnaire is distributed by the researcher to the respondent and the researcher will accompany the questionnaire filling in so that he can explain to the respondent if the respondent has difficulty filling in the questionnaire. If the respondent is unable to fill in at that time, the questionnaire will be left for some time and then taken back after the respondent has filled it in.

3. Interview

In the first phase of the field study, informants were asked about the use of natural food plants, and then further specific information was obtained using more complex questions. Informants were asked specifically to explain the methods and means of using plants as food (Pieroni, 2002). This was done using a questionnaire questionnaire.

4. Questionnaire collection

The questionnaires were collected immediately when the respondent finished filling out the questionnaire and for questionnaires that were

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left for some time, they would be collected after completion by the respondent. The number of questionnaires collected is the same as the number of questionnaires distributed.

B. Data Analysis

The data analysis technique used is that the data obtained is analyzed using descriptive data analysis (Amin, 2012).

RESULTS AND DISCUSSION

This research is a type of research by collecting information about plants that are believed to be medicinal in Keera District, Wajo Regency, South Sulawesi Province. Data were obtained by distributing questionnaires and interviews to people or residents of

Keera Sub district who have knowledge about medicinal plants (traditional medicine). Questionnaires and interviews contain the identity of the community (informants) and information about plants that can have medicinal properties including regional names, Indonesian names, plant parts used, processing methods, methods of use and doses/rules of use. Questionnaires were filled in by informants online and offline due to this research being conducted during the covid-19 pandemic based on directions / instructions from researchers while interviews were conducted directly to traditional healers, traditional leaders / communities and people experienced in traditional medicine who were taken proportionally scattered in Keera District. The following are data on ethno pharmaceutical plants used by the people of Keera Sub district, Wajo Regency, South Sulawesi Province.

Table 1. Ethnopharmacy of medicinal plants in Keera sub-district, Wajo district, South Sulawesi province.

No.	Name of Region/Indonesia	Family	Latin Name	Parts Used	Form of presentation	How to use	Diseases treated	Dosage/Rules of Use
1.	Apoka' (Alpukat)	Lauraceae	<i>Persea americana</i>	Leaves	Single	Drinking	Uric acid, hypertension, cholesterol, headache/dizziness	As needed
2.	Tanging (Jarak pagar)	Euphorbiaceae	<i>Jatropha curcas</i>	Getah	Herb	Drinking	Piles	3 x Daily
3.	Caneneng (Belimbing Wuluh)	Oxalidaceae	<i>Averrhoa bilimbi</i>	Flower, Fruit	Single	Drinking	Child Cough, Hypertension	3 x Daily
4.	Pesse (Jahe)	Zingiberaceae	<i>Zingiber officinale</i>	Tubers	Single	Smear	Inflammation	Apply to the swollen area
5.	Kaliki (Pepaya)	Caricaceae	<i>Carica papaya</i>	Seeds	Herb	Drinking	Ulcers, hives	3 x A day, 2 x a day
6.	Sumpu (Bayam)	Caryophyllales	<i>Amaranthus</i>	Leaves	Single	Eaten	Low Blood	Eaten to taste
7.	Lasuna puteh (Bawang Putih)	Liliaceae	<i>Allium sativum</i>	Tubers	Single	Eaten	High blood pressure, fever, stomach, headache/dizziness	Chewed, Swallowed,
8.	Lasuna Cella (Bawang Merah)	Liliaceae	<i>Allium cepa</i>	Tubers	Single	Smear	Fever in a child, Masuk angina	Smear on the forehead and forehead and recite Salah.
9.	Sambiloto (Sambiloto)	Acanthaceae	<i>Andrographis paniculata</i>	Leaves	Single	Drinking	Itching	3 x Daily
10.	Onyi (kunyit)	Zingiberaceae	<i>Curcuma longa</i>	Tubers	Herb	Drinking	Stomach, Cough	3 x Daily
11.	Daung Ota (Sirih)	Piperaceae	<i>Piper betle</i>	Leaves	Herb	Drinking	DM, Shortness of breath	3 x Daily
12.	Temmu (Temulawak)	Zingiberaceae	<i>Curcuma zanthorrhiza</i>	Tubers	Herb	Drinking	DM, Stomach	3x A Day
13.	Adas (Adas)	Apiaceae	<i>Foeniculum vulgare</i>	Leaves	Single	Smear	Ringworm, cough, baby bump	Applied to the ringworm area regularly
14.	Keloro (Kelor)	Moringaceae	<i>Moringa oleifera</i>	Leaves	Single	Applied topically, taken orally	Cold, stamina booster, breast milk facilitator	Rubbed on the stomach, taken in the morning
15.	Lida buaya (Lidah Buaya)	Xanthorrhoeaceae	<i>Aloe vera</i>	Leaves	Single	Eaten	Headache/dizziness, Stomach	Eaten to taste
16.	Serre (serih)	Poaceae	<i>Cymbopogon citratus</i>	Stems and leaves	Single	Made to gargle	Toothache, Stamina Booster	Gargle, Drink
17.	Beluntas	Asteraceae	<i>Pluchea indica</i>	Leaves	Single	Drinking	Stomach Pain	3 x Daily
18.	Panasa (Nangka)	Moraceae	<i>Artocarpus heterophyllus</i>	Leaves	Herb	Drinking	Gout, Inflammation	2 x Daily
19.	Salam (Salam)	Myrtaceae	<i>Syzygium polyanthum</i>	Leaves	Herb	Drinking	Gout, Inflammation, Sciatica	2 x Daily
20.	Lemo kapasa' (Jeruk nipis)	Rutaceae	<i>Citrus aurantiifolia</i>	Fruit juice	Potion, Single	Drinking, Applying	Piles, Warts	3 x Daily, Applied to the wart
21.	Pau (Mahkota Dewa)	Thymelaeaceae	<i>Phaleria macrocarpa</i>	Leaves	Herb	Drinking	Piles	3 x Daily
22.	Kaluku lolo (Kelapa Muda)	Arecaceae	<i>Cocos nucifera</i>	Fruit	Single	Drinking	Mild cough out of breath	3 x Daily
23.	Lame aju (singkong)	Euohorbiaceae	<i>Manihot esculenta</i>	Tubers	Single	Eaten	Lack of blood	Eaten as needed
24.	Petikang (Patikan)	Euphorbiaceae	<i>Euphorbia hirta</i>	Leaves	Herb	Drinking	Hypertension	3 x a day
25.	Manirang (Meniran)	Phyllanthaceae	<i>Phyllanthus urinaria</i>	Leaves	Herb	Drinking	Hypertension	3 x Daily
26.	Serikaja (Sirsak)	Annonaceae	<i>Annona muricata</i>	Leaves	Single	Drinking	Hypertension	3 x Daily
27.	Onyi (kunyit)	Zingiberaceae	<i>Curcuma longa</i>	Tubers	Herb	Drinking	Diarrhea	3 x Daily
28.	Cempa (Asam)	Fabaceae	<i>Tamarindus indica</i>	Leaves	Herb	Drinking	Diarrhea	3 x Daily
29.	Cawangi (Kemangi)	Lamiaceae	<i>Ocimum citriodorum</i>	Leaves	Single	Smear	Shortness of breath	Applied on the chest
30.	Daun tungke (Pegagan)	Apaceae	<i>Centella asiatica</i>	Herba	Single	Drinking	Receipt	3 x Daily
31.	Lawo (Labu kuning)	Cucurbitaceae	<i>Cucurbita moschata</i>	Fruit	Single	Drinking	Tipes	3 x Daily
32.	Burica (Lada)	Piperaceae	<i>Piper nigrum</i>	Seeds	Herb	Smear	Child pain	Applied to the child's body
33.	Alosi (Pinang)	Arecaceae	<i>Areca catechu</i>	Seeds	Herb	Chewed and sprayed	Tumors	Chewed and then sprayed on the affected area.
34.	Felleng (Kemiri)	Euphorbiaceae	<i>Aleurites moluccanus</i>	Seeds	Herb	Chewed and sprayed	Tumors	Chewed and sprayed on the affected area.

35.	Kenra (Astragalus)	Fabaceae	<i>Astragalus propinquus</i>	Leaves	Herb	Kissed and smeared	Bloating and abdominal pain	3 x Daily
36.	Dako-Dakko (Calincing)	Oxalidaceae	<i>Oxalis corniculata</i>	Leaves and stems	Single	Drinking	Lion king/syphilis	3 x Daily
37.	Ilalang (Alang-alang)	Poaceae	<i>Imperata cylindrica</i>	Roots, leaves and stems	Herb	Drinking	Uric acid	3 x Daily
38.	Serru-serru (Lemon Halm)	Lamiaceae	<i>Melissa officinalis</i>	Leaves	Herb	Drink and apply	Stomach pain	3 x a day
39.	Daun betadine (Jarak cina)	Euphorbiaceae	<i>Jatropha curcas</i>	Getah	Single	Smeared	Luka	Directly applied to the wound
40.	Likku (lengkuas)	Zingiberaceae	<i>Alpinia galanga</i>	Tubers	mixed	Smeared	Fever	Used for compress
41.	Cekku (Kencur)	Zingiberaceae	<i>Kaempferia galanga</i>	Tubers	Single	Dminum	Cough with phlegm	3 x a day
42.	Minahong (binahong)	Basellaceae	<i>Anredera cordifolia</i>	Leaves	Single	Drinking	Internal Medicine	3 x Daily
43.	Suruhan (Kaca-kaca)	Piperaceae	<i>Peperomia pellucida</i>	Stems and leaves	single	Smeared	Acne	Made into a mask mask
44.	Lelleng banua (Daun wungu)	Acanthaceae	<i>Graptophyllum pictum</i>	Leaves	Single	Drinking	Abdominal pain and fever	3 x Daily
45.	Ralla (legundi)	Verbenacea	<i>Vitex trifolia</i>	Leaves	Single	Dripped	Influenza	Leaf extract is dripped on the nose
46.	Biccoro (Harendong)	Melastomataceae	<i>Melastoma affine</i>	Leaves	Single	Chewed	Tonsils	Chew and then swallow the extract
47.	Pecca belling (Keji beling)	Acanthaceae	<i>Strobilanthes crispa</i>	Leaves	Herb	Drinking	Hypertension	3 x Daily
48.	Baje-baje			Leaves	Single	Smeared	Ulcers, Inflammation	Smeared on boils
49.	Kumis kucing (Kumis kucing)	Lamiaceae	<i>Orthosiphon aristatus</i>	Leaves	Single	Drinking	Tumors and kidneys	3 x Daily
50.	Tapak dara (Tapak dara)	Apocynaceae	<i>Catharanthus roseus</i>	All	Herb	Smeared	Tumors	Made into powder

Based on the results of interviews and filling out questionnaires obtained data on plants that are medicinal in Keera District, Wajo Regency, South Sulawesi Province as many as 32 families of plants serving in the form of single or concoction.

Zingiberaceae is the most widely used family, namely 5 species, one of which is turmeric used to treat gastric diseases by grating turmeric then taking the water, adding honey and 1 chicken egg, stirring until mixed, drinking 3 x a day. According to Budianto's research, 2015 Turmeric has the main active substance content in the form of curcuminoids and essential oils. The curcuminoid content consists of curcumin, desmetoksikumin, and bisdesmetoksikurkumin, while essential oils consist of sesquiterpene ketones, turmeron, tumeon, zingiberen, felandren, sabinen, borneol, and sineil. Other turmeric content is fat, carbohydrates, protein, vitamin C, carotene, mineral salts (iron, phosphorus, calcium). Turmeric extract can inhibit the increase in cAMP due to dimaprit stimulation, which is a histamine receptor agonist. which has an anti H2 receptor effect can be used to prevent gastric ulcers due to histamine release.

The Euphorbiaceae family is found as many as 4 species, one of which is jatropha used to treat hemorrhoids by adding honey and hot water to the sap and then stirring it until it is mixed and drunk 3 x a day. According to Sarimole, 2014 *Jatropha* contains phenol compounds, flavonoids, saponins, and alkaloid compounds that can treat various diseases, namely hemorrhoids, vaginal discharge in infants, ear inflammation, toothache, thrush, flatulence, fungus, itching, swelling, wounds, bleeding, rheumatism, cough, and as a phlegm expectorant. The Acanthaceae family is found as many as 3 species, one of which is sambiloto to treat itching by means of one handful of sambiloto leaves boiled with 2 cups of water to become 1 glass taken 3 x a day. According to the journal Nugroho, 2016 The main content of sambiloto leaves, such as lactone in the form of deoxy-andrographolide, andrographolide (bitter substance), neoandrographolide, 14-deoxy-11,12 didehydroandrographolide, and homoandrographolide. Andrographolide can fight allergic diseases. In addition, sambiloto leaves contain saponins, alkaloids, flavonoids, and tannins. Other chemical contents found in sambiloto leaves are paniculin, and kalmegin.

The Piperaceae family is found as many as 3 species, one of which is betel used to treat DM by means of one handful of betel leaves added to temulawak thinly sliced then boiled drunk 3 x a day. According to research by Saputra, Yuniarti & Sumarmin, 2018 betelleaves (Piperbetle) contain phytochemical compounds including flavonoid compounds. These antioxidants can bind hydroxyl radicals that damage the β -cells of the pancreatic Langerhans islets, so that insulin production will be maximized. Empirically, the flavonoid compound in betel leaf can reduce blood glucose levels and cure diabetes mellitus (DM). The Lamiaceae family is found as many as 3 species, one of which is a *O.aristatus* to treat kidneys and tumors by boiling cat whisker leaves (7 stalks for 3 L of water). According to Dwijayanti's research, 2018 the content of chemical compounds in cat whisker plants includes flavonoids, caffeine derivatives, terpenoids, carbohydrates, steroids, and glycosides where some of these compounds can dissolve kidney stones.

The Liliaceae family found 2 species, one of which is garlic used to treat hypertension and also fever by slicing garlic into small pieces and then swallowing it directly. According to Kartikasari & Tjokropranoto (2013), garlic (*Alium sativum* L.) has pharmacological effects as an Angiotensin Converting Enzyme (ACE) inhibitor. Alicin contained in garlic bulbs effectively blocks the activity of angiotensin II, causing vasoconstriction and reducing aldosterone levels and causing blood pressure to decrease.

The Poaceae family found 2 species, one of which is lemongrass used to treat toothache and increase stamina by adding enough water and salt and then making a mouth rinse for toothache, while for increasing stamina lemongrass 2 stems are cut into pieces and then pounded, added warm water and sugar according to taste drunk in the morning. The fabaceae family found 2 species, one of which is tamarind used to treat diarrhea by mixing with shredded turmeric, rice and young leaves of tamarind pounded until smooth then boiled.

The arecaceae family found 2 species, one of which is young coconut used to treat coughs by way of head water 2 tablespoons plus honey and salt taken 3 x a day. Some other families found and commonly used by the community as traditional medicine are Lauraceae, Oxalidaceae, Caricaceae, Caryophyllales, Apiaceae, Moringaceae, Xanthorrhoeaceae, Asteraceae, Moraceae, Myrtaceae, Rutaceae, Thymelaeaceae, Euohorbiaceae, Phyllanthaceae, Annonaceae,

Apaceae, Cucurbitaceae, Oxalidaceae, Basellaceae, Verbenaceae, Apocynaceae, Melastomataceae, and Morindaceae.

The endemic plants of Keera Sub- district or native plants that can only be found in a certain geographical area and not found in other areas are *baje- baje*, this plant resembles noni but the fruit is smaller in size and is used to treat boils and inflammation by mashing *baje- baje* leaves together with turmeric rhizomes, candlenuts and shallots then incised on the swollen boils.

Most of the respondents in this study are people who have experience using plants for treatment, have consumed these plants. From the results of the research conducted, there are various diseases that are commonly treated using plants. The most widely used parts of the plant are the leaves then tubers, fruits/seeds, and stems and sap. Most plants are used/consumed by drinking but some are used by applying, dripping, eating, and spraying. Based on the results of interviews, people more often use traditional medicine using medicinal plants rather than medical treatment. This is because the costs incurred are not there and also the effects felt are better after using traditional medicine. In addition, traditional medicine is also safe to use, easy to use and has no side effects while consuming traditional medicine. The medicinal plants are obtained by the community from the garden, grow wild on the side of the road, in the forest, and are also found in the yard of the local community.

CONCLUSIONS

Based on the results of a search or survey conducted in Keera District, Wajo Regency, South Sulawesi Province regarding plants that are efficacious as medicine, it can be concluded that the types of plants that are medicinal in Keera District are 32 families and 50 plant species, namely: Avocado (*Persea Americana*), *Jatropha curcas*, *Belimbing Wuluh* (*Averrhoa bilimbi*), *Ginger* (*Zingiber officinale*), *Papaya* (*Carica papaya*), *Spinach* (*Amaranthus*), *Garlic* (*Allium sativum*), *Red Onion* (*Allium cepa*), *Sambiloto* (*Andrographis paniculata*), *Turmeric* (*Curcuma longa*), *Betel* (*Piper betle*), *Curcuma longa* (*Curcuma zanthorrhiza*), *Fennel* (*Foeniculum vulgare*), *Moringa* (*Moringa oleifera*), *Aloe vera* (*Aloe vera*), *lemongrass* (*Cymbopogon citratus*), *Beluntas* (*Pluchea indica*), *Jackfruit* (*Artocarpus heterophyllus*), *Salam leaf* (*Syzygium polyanthum*), *Lime* (*Citrus aurantiifolia*), *Crown of God* (*Phaleria macrocarpa*), *Young Coconut* (*Cocos nucifera*), *cassava* (*Manihot esculenta*), *Patikan* (*Euphorbia hirta*), *Meniran* (*Phyllanthus urinaria*), *Soursop* (*Annona muricata*), *turmeric* (*Curcuma longa*), *Tamarind* (*Tamarindus indica*), *Basil* (*Ocimum citriodorum*), *Pegagan* (*Centella asiatica*), *Pumpkin* (*Cucurbita moschata*), *Pepper* (*Piper nigrum*), *Areca nut* (*Areca catechu*), *Candlenut* (*Aleurites moluccanus*), *Astragalus* (*Astragalus propinquus*), *Calincing* (*Oxalis corniculata*), *Alang-alamg* (*Imperata cylindrical*), *Lemon Halm* (*Melissa officinalis*), *Jatropha curcas*, *galangal* (*Alpinia galangal*), *Kencur* (*Kaempferia galangal*), *binahong* (*Anredera cordifolia*), *Kaca-kaca* (*Peperomia pellucida*), *Daun wungu* (*Graptophyllum pictum*), *legundi* (*Vitex trifolia*), *Harendong* (*Melastoma*) *affine*, *Keji beling* (*Strobilanthes crispata*), *Bingkuru*, *O.aristatus* (*Orthosiphon aristatus*), *Tapak dara* (*Catharasnthus roseus*) *sativus* L. (L.)

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