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Utilization of medicinal and spices plants in Suranadi Village, Narmada District, West Lombok, Indonesia

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Abstract

Many people of Indonesian performs medical treatment without medical assistance but through traditional medicine, specifically with medicinal and spices plants. One of them is the people of Suranadi Village in Narmada District, West Lombok Regency, West Nusa Tenggara Province. The cultivation of home garden species like medicinal and spices plants is a rich source of nutritious food and it's optimizing the benefits of the home garden can help reduce air pollution, increase oxygen supply and improves environmental quality and public health. Therefore, this study inventorying medicinal and spices plants in the home garden that used on the knowledge of Suranadi peoples to know the extent utilization of medicinal and spices plants by Suranadi peoples. This study used the Descriptive exploratory method with 48 plots and the descriptive analysis used to explain the result. The results showed, there are 36 species in 23 families that people of Suranadi Village used as medicinal plants, and it found that Suranadi People utilized 9 plant species in 5 families as spices plants (seasoning).

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Introduction

The public knowledge about utilization of plants as medicine and spices just on to increase appetite. Other than, hereditary knowledge is a form of interaction between society and the environment, especially plants (ethnobotany). In Indonesia, amount people who use traditional medicine remain high. The population performs medical treatment without medical assistance but through traditional medicine, including the people in Suranadi Village, Narmada District, West Lombok Regency, West Nusa Tenggara Province.

Suranadi village is an area rich in natural resources, both biotic and abiotic. The biotic component in home garden is an important resource which of optimized will have a significant economic impact as well as a source of family food.

Medicinal and spices plants are used widely in various life because the chemical compounds and active ingredients in contain. Medicinal and spices plants produce roots, rhizomes, stems, flowers, fruits, seeds that can be commercialized whole raw parts or extract thereof in dry or wet form. Harvest of medicinal and spices plants are seasonally or nor.

Cultivation of home garden species such as medicinal and spices plants is a rich source of nutritious food produced from the home garden. In addition, optimizing the benefits of the home garden can also help reduce air pollution, increase oxygen supply and improve environmental quality and public health. By planting medicinal and spices plants in the home garden, hoped that it can support a green lifestyle, which is an effort to overcome the rate of global warming begin from the home garden.

Utilization of plants as medicinal plants, spices or herbs and even simplicia has been believed and recognized through scientific research. However, Giriwono (2016) revealed that out of 30 thousand types of plants in Indonesia, 7000 types have the potential to become herbal medicines. Unfortunately, only 200 types of plants have been used as traditional medicines. Comprehension of ethnobotany for the community can maintain its local wisdom in the use of plants or home garden. The knowledge of local communities utilized plant resources can indirectly preserved biodiversity and the domestication of medicinal and spices plants (Kandari *et al*., 2012).

The study aims are inventorying medicinal and spices plants in the home garden that used on the knowledge of Suranadi people. It hoped to contribute to the Suranadi people and ward manager in the form of document types and benefits plants as an effort to the public especially the Suranadi people to developed food endurance.

Material and methods

Study area

Materials and Methods should emphasize on the procedures and data analysis. For field study, it is better if study site is included (Fig. 1).

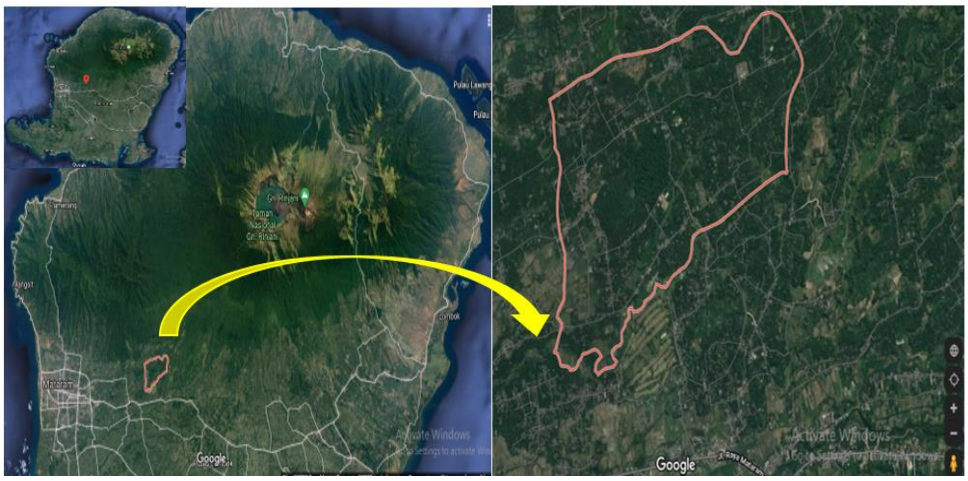

Fig. 1. Map of Suranadi Village, Narmada District, West Lombok, Indonesia.

Procedures

The data collection technique procedures in this study are as follows:

1. The purposive sampling used to determine of the sample plot. The plot criteria are a home garden that has 10 types minimum of plants at house of people Suranadi village. There are 48 plots used in the research that was determined accidentally.
2. This study used a descriptive exploratory method by direct observation and semi-structured interviews. The housewife who own and utilize her home garden in Suranadi village as a resource in this study. It aims to find out about people's perceptions regarding the study objectives. This study is explorative and descriptive with the aims to obtain the possible knowledge and to provide a systematic description of the diversity and benefits of plants found in the home garden at Suranadi Village.
3. Determine and inventory the species of garden plants used as medicinal plants and spices, then identify the scientific names based on morphological characteristics.

Data analysis

The results of the study were then analyzed descriptively. The data is presented in tables and diagrams.

Result and discussion

Medicinal plants

The people of Suranadi Village use garden plants as traditional medicine. The results showed that there 36 species in 23 families that people of Suranadi Village used as medicinal plants. The family of medicinal plants are presented in Table 1.

Table 1. Medicinal Plants List in Suranadi Village.

Nama Family	Nama Ilmiah	Nama Latin
Annonaceae	*Sirsak*	*Annona muricata* L.
Apiaceae	*Bebele*	*Centella asiatica* (L.)
	Seledri	*Apium graveolens* L.
Arecaceae	*Buaq*	*Areca catechu* L.
	Nyiuh	*Cocos nucifera* L.
	Nyiuh Gading	*Cocos nucifera* var. eburnean
Asteraceae	*Penyambung Nyawa*	*Gynura procumbens* (Lour.) Merr.
Asphodelaceae	*Lidah Buaya*	*Aloe vera* L.
Basellaceae	*Bilahong*	*Anredera cordifolia* (Ten.) Steenis
Fabaceae	*Bageq*	*Tamarindus indica* L.
	Kembang teleng	*Convolvulus pluricaulis*
	Tegining Teganang	*Senna hirsute* (L) H.S. Irwin & Barneby
Caricaceae	*Gedang*	*Carica papaya* L.
Clusiaceae	*Manggis*	*Garcinia mangostana*
Cucurbitaceae	*Prie*	*Momordica charantia* L.
Euphorbiaceae	*Ambon Jawe*	*Manihot esculenta* Crantz
	Jarak	*Jatropha curcas* L.
	Sager	*Sauropus androgynus* (L.) Merr.
Lamiaceae	*Kumis Kucing*	*Orthosiphon aristatus* Benth
Lauraceae	*Apokat*	*Persea americana* Mill
Menispermaceae	Cincau atau *daluman*	*Cyclea barbata* Miers
Moringaceae	*Kelor*	*Moringa oleifera* Lam
Oxalidaceae	*Belimbing Wuluh*	*Averrhoa bilimbi* L.
Poaceae	*Sere*	*Cymbopogon nardus* L. Rendle
	Tebu Bideng	*Saccharum sinense* Roxb.
	Tebu Kuning	*Saccharum officinarum* L.
Portulacaceae	*Ginseng*	*Talinum paniculatum* Jacq Gaertn
Piperaceae	*Lekoq*	*Piper betle* L.
Rubiaceae	*Pace*	*Morinda citrifolia* L.
Rutaceae	*Jeruk Nipis*	*Citrus aurantifolia* (Christm.) Swing
Thymelaeaceae	*Mahkota Dewa*	*Phaleria macrocarpa* (Scheff) Boerl.
Zingiberaceae	*Jae*	*Zingiber officinale* Rosc.
	Kunyiq	*Curcuma longa* L.
	Sekoh	*Kaempferia galanga* L.
	Temu mangga	*Curcuma amada*
	Temulawak	*Curcuma xanthorrhiza* Roxb.

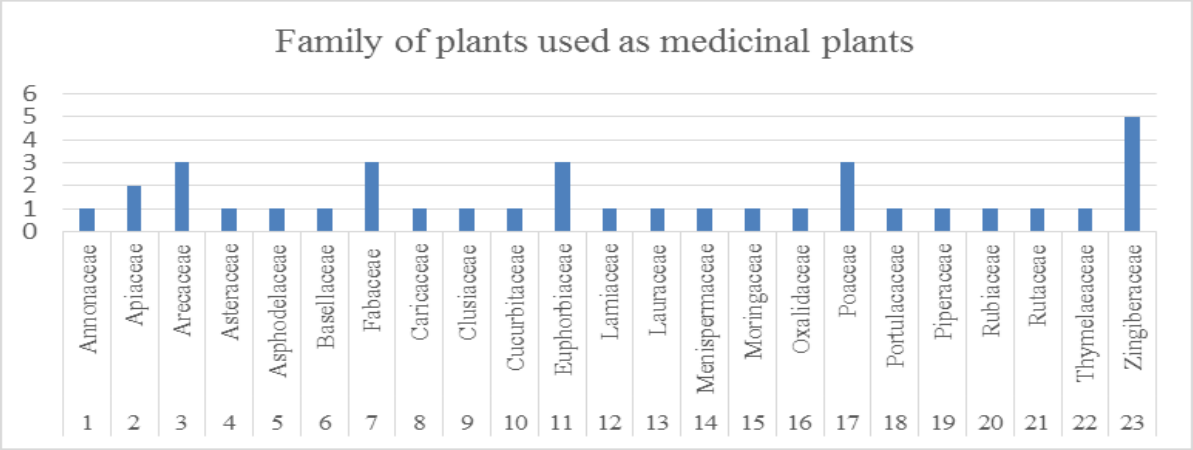

Fig. 2. Table of families used as medicinal plants.

Based on the picture, the Zingiberaceae is a family with most widely species used as medicine by the people of Suranadi Village. Steenis, *et al*., (2008) in *Flora* explained that Zingiberaceae is an herb with rhizome roots. Generally, the leaves consist of two rows with the midrib hugging the stem. This family has zygomorph flowers, which are androgynous with tubular petals. There are 5 species of plants in this family that are used as traditional medicine in Suranadi Village, there are Jae *(Zingiber officinale)* (Fig. 3D), Kunyiq *(Curcuma longa)* (Fig. 3C), Sekoh *(Kaempferia galanga)* (Fig. 3F), *Temu mango (Curcuma amada), Temulawak (Curcuma xanthorrhiza)*. The people of Suranadi Village use this plant as herbal medicine and apply it to various types of skin diseases. Currently, Suranadi people planting this plant in their home garden because they believed this plant can be an antiviral and people can avoid the *Covid-19* virus which is currently a world pandemic. Based on Elfahmi *et al.* (2014) in Swandayani (2016), The Zingiberaceae is the family with species most widely used as herbal medicine or traditional medicine by the Indonesian people, one of them is Ginger or *Jae* (*Zingiber officinale*).

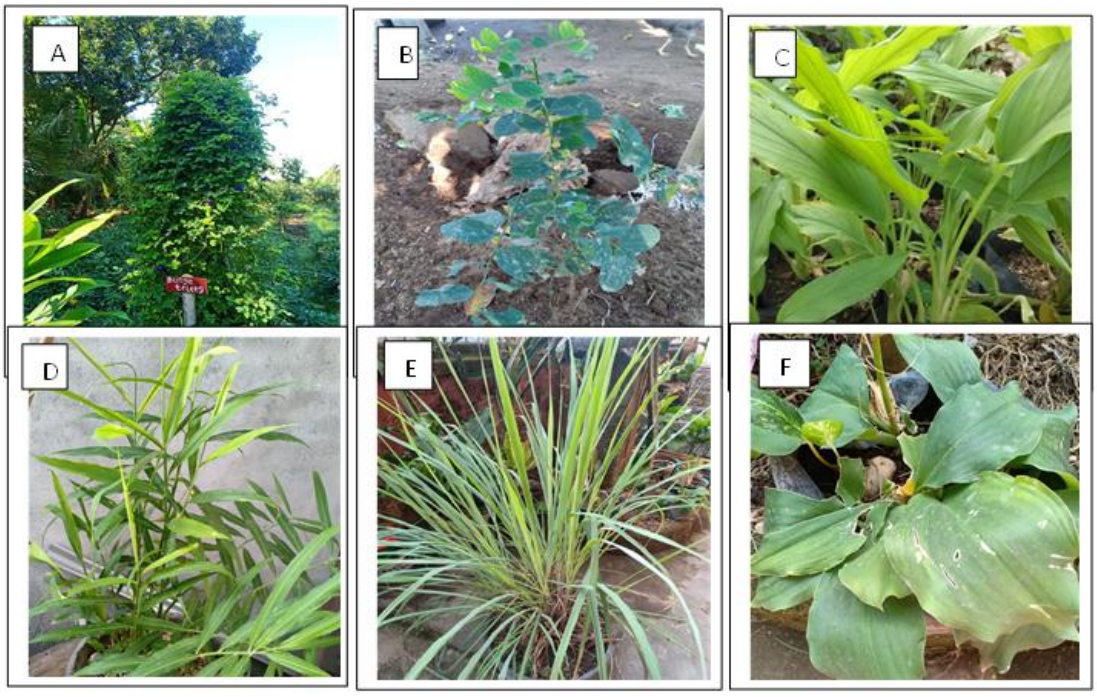

Fig. 3. A. *Kembang Telang* (*Convolvulus pluricaulis*); B. *Sager* (*Sauropus androgynus*); C. *Kunyiq* (*Curcuma longa)*; D. Jae (*Zingiber officinale)*; E. *Sere* (*Cymbopogon nardus*); F. *Sekoh* (*Kaempferia galanga)*.

Ginger rhizome has been used by humans for a long time as an anti-inflammatory and anti-microbial. The total antioxidant strength measured in the Oxygen Radical Absorbance Capacity (ORAC) of the ginger rhizome is 14840µmol TE/100g. Based on these causes ginger as an important herb in health sector. Red ginger has the highest essential oil which is used for a variety of treatments, including rheumatism, influenza, asthma, colds, and sore throat.

Gingerol in ginger root can help increase intestinal motility and is known to act as an anti-inflammatory, pain-relieving (analgesic), anti-pyretic and anti-bacterial agent. Many studies report that gingerol can relieve nausea, headaches and migraines (Thomas, 1989; Shukla & Singh, 2007; Hakim, 2015).

Euphorbiaceae, Fabaceae, Arecaceae and Poaceae are the families with the second largest species used by the people of Suranadi Village as medicinal plants. Each of these families consists of 3 plant species that are used by the local community. The Euphorbiaceae consists of *Ambon Jawa* (*Manihot esculenta*), *Jarak* (*Jatropha curcas*) and *Sager* (*Sauropus androgynus*) (Fig. 3B). Based on Swandayani (2016), Singkong (Ambon Jawa) is a shrub with large root tubers used by the Sasak people as a medicine for *Dengong* or inflammation of back side ear. The people mashed the cassava (Ambon Jawa) and corn by chewing it and then spraying it on the swollen part. They believe that it can relieve inflammation due to the cooling effect it has on the herb.

Fabaceae consists of *Bageq* (*Tamarindus indica*), *Kembang Teleng* (*Convolvulus pluricaulis*) (Fig. 2A) and *Tegining Teganang* (*Senna hirsute*). The people uses *Bageq* to reduce menstrual pain, The *Kembang Telang* is made as a tea for antioxidants and the *Tegining Teganang* plant is used as a skin medicine.

Poaceae consists of *Sere* (*Cymbopogon nardus*) which is used as a mixture of herbs and people believed its to be an antiviral for Covid-19, *Tebu Bideng* (*Saccharum sinense*) and *Tebu Kuning* (*Saccharum officinarum*) are both used as cough medicine by burning then drinking the water.

Arecaceae consists of *Buaq* (*Areca catechu*) is used by the people as a *Sembeq* when the local people sick because of the mystical distraction. It is made by chewing by psychics and recited a mantra then smeared on the sick body. *Nyiuh* (*Cocos nucifera*) and *Nyiuh Gading* (*Cocos nucifera* var. Eburnean) are believed by the public to treat poisoning if they drink the water.

Spice Plants (Seasoning)

Based on the research, it was found that 9 plant species in 5 families were utilized by Suranadi People's as spices plants (seasoning). The families with the most species are Zingiberaceae consisting of Jae (*Zingiber officinale*), *Kunyiq* (*Curcuma longa*), Laos (*Alpinia galanga*), *Sekoh* (*Kaempferia galanga*), *Temulawak* (*Curcuma xanthorrhiza*) (Fig. 3). Spice plant list in Suranadi Village are presented in Table 2.

Table 2. Spice Plants List in Suranadi Village.

Family	Local name	Species
Fabaceae	Bageq	*Tamarindus indica* L.
Pandanaceae	Pandan	*Pandanus amaryllifolius* Roxb
Poaceae	Sere	*Cymbopogon nardus* L. Rendle
Rutaceae	Munte	*Citrus amblycarpa* (Hassk.) Ochse
Zingiberaceae	Jae	*Zingiber officinale* Rosc.
	Kunyiq	*Curcuma longa* L.
	Laos	*Alpinia galanga* (L.) Sw.
	Sekoh	*Kaempferia galanga* L.
	Temulawak	*Curcuma xanthorrhiza* Roxb

In addition to these 5 types of plants, 4 other types of plants were also found that were used by Sasak people as spices (seasoning), namely Bageq (*Tamarindus indica*), Pandan (*Pandanus amaryllifolius*), Sere (*Cymbopogon nardus*) (Fig. 2E) and Munte (*Citrus amblycarpa*).

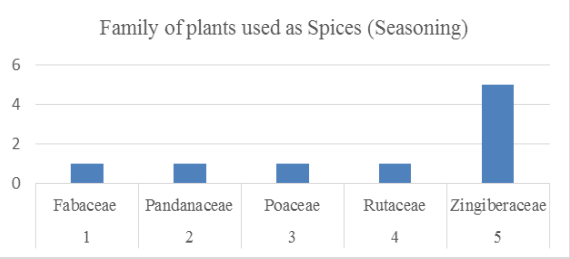

Fig. 4. Families used as spices (seasoning).

In the area around the home garden, Ginger (*Jae)* (Fig. 3D) and Turmeric (*Kunyiq)* (Fig. 3C) are grown for daily needs. People in tropical countries use ginger and turmeric for cooking and making drinks to refresh the body. Ginger and Turmeric are easy to cultivate and its cultivation in the home garden is very simple and can be cultivated by all family members. Ginger and turmeric are also widely recognized as preservative ingredients in culinary. Various traditional dishes in Indonesia use ginger as a spice.

Based on the research, Turmeric and Ginger are the types of spices that are mostly found in the home garden of Suranadi Village. This is because people use it as a daily necessity spices and traditional medicines. Sasak people usually use *Ragi Beleq* in every dish where Turmeric and Ginger are one of the ingredients in the *Ragi Beleq*. *Ragi Beleq* or Bumbu Besar is a typical cooking spice of the Sasak tribe consisting of various types of spices for daily cooking or for cooking spices at certain events (*Begawe beleq*).

Based on the results of this study it can be concluded that there are 36 species in 23 families that people of Suranadi Village used as medicinal plants, and it found that 9 plant species in 5 families were utilized by Suranadi People's as spices plants (seasoning). The government or associated parties such as ward manager need to provide education to the public, especially the Suranadi people, to take an actively developed food endurance.

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