

Local Wisdom of The People of Kemlaten Village Parengan Sub-District In Utilizing Wild Plants

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Abstract

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The community of Kemlaten village has a habit of using wild plants as food and medicine. The purpose of this study was to describe the types of wild plants used by the Kemlaten village community, Parengan District, as food and medicine and as well as their morphology. This quantitative descriptive study was conducted in March-April 2022 in the Kemlaten village area. The results of the study showed that there were 25 species of wild plants used as food and medicine by the Kemlaten villagers. Of the 25 wild plant species, 32% are used as food and 68% as medicine. The results of the morphological analysis of wild plants used as food and medicine by the villagers of Kemlaten are dominated by single-leaf plants and woody stems. The morphology of these wild plants differs from one another according to the type or family of these wild plants.

Keywords: food ingredients, medicinal ingredients, wild plants

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INTRODUCTION

Indonesia is one of the countries with the 3rd highest flora biodiversity in the world. The megabiodiversity of flora in Indonesia makes the potential of plants in Indonesia very diverse [1], [2]. There are so many potential plants in Indonesia, one of which is wild plants. Wild plants are plants that grow wild in rice fields, yards and on roadsides [3]. In addition, most wild plants grow in the forest [4]. Humans consider wild plants as plants that reduce production of cultivated plants [5], even though wild plants have benefits for human life.

Wild plants have benefits for human's everyday life [6], [7]. Utilization of wild plants as food and

medicine can be carried out by utilizing leaves, fruit, seeds, rhizomes and roots of wild plants. The use of wild plants as medicine has been passed down from generation to generation to cure diseases. This is done by preserving the way of utilizing these plants taught by the ancestors [8].

The study of the use of plants directly or indirectly by humans is included in the ethnobotany science group [9]. Ethnobotany is also known as the science that studies the relationship between humans and plants. This relationship can be in the form of utilization of natural resources by humans [10], [11]. The ethnobotanical knowledge is obtained from interaction activities and processes with nature so that people can find the useful and poisonous plants [12].



The results of the human-plant interaction make the community understand about plants that can be utilized in accordance with local wisdom [13]. Previous research on the use of wild plants by the Tamambaloh Dayak people made use of existing plants in the forest based on knowledge obtained by the community from their families, traditional leaders, experience and trial and error results [14]. Other research results regarding the use of wild plants were found in research conducted in the Silaberanti sub-district, Silaberanti Seberang Ulu 2 Palembang district. In this study, the community used wild plants in their yards as medicines consisting of 25 families, 38 genera and 38 species.

The parts of the plant that are used are leaves, roots, stems, fruit, seeds, flowers, and sap [4]. Furthermore, the results of research by Yassir & Asnah [15] regarding the use of wild plants as medicinal plants in the Batu Hamparan area, Southeast Aceh Regency show that the plants used as medicine consist of 30 families, most of which are in the Zingiberaceae family. The utilization of plants by the Batu Hamparan community has been carried out by their ancestors and passed down from generation to generation until now.

In connection with the utilization of wild plants as medicinal and food ingredients by the Kemlaten village community, which is one of the villages in the Parengan District. The Kemlaten village area is dominated by agricultural land and forests, so that the majority of the population works as farmers. Kemlaten villagers have a habit of using wild plants as medicine and food ingredients. The use of wild plants is in accordance with Silalahi's research [16] which states that several wild plants are widely used by the community as medicinal ingredients and food sources. Knowledge in the use of these plants was obtained by the Kemlaten village community from generation to generation.

Based on the description above, the following problems arise: how is the local wisdom of the Kemlaten villagers, Parengan District, in utilizing wild plants? Thus, the purpose of this research is to describe the types of wild plants used by the Kemlaten village community, Parengan District as food and medicine ingredients and inform the morphology of those wild plants

METHODS



Place and time of research

This research was conducted in the Kemlaten village area, Parengan District, to be precise in the administrative division RT 02 RW 01 area. The research was conducted from March to April 2022. The community interviews was conducted on March and the observation of wild plants that are commonly used by the community was conducted on April. The map of the Kemlaten village area, Parengan District, is presented in Figure 1.



Figure 1 Map of the Kemlaten village area

Types of research

This research is quantitative descriptive. The descriptive method is used to describe research results and presented in the form of quantitative data. Data collection methods in this study were interviews and observation. Interview with Kemlaten villagers was conducted to find out the types of wild plants used as food and medicine. The observation method was used to obtain morphology data of the plants used.

Ways of working

This study procedure used refers to the Marpaung method [17] consisted of several stages as follow. (1) Seeking information from Kemlaten villagers through semi-structural interview techniques using an interview guide. This interview guide contains the following questions: local name, benefits, part used, and method of use. (2) Collection of plant data such as the data about the names of wild plants used by the Kemlaten village community were collected and recorded based on the result of observation on their morphology. (3) Photo documentation of observed plants that are part of the observation data

Collection and Analysis of Research data

The data analysis used is a descriptive percentage based on Februyani's method. (2020) with the following formula.

$$Dp = \frac{n}{N} \times 100\%$$

Information:

Dp = Percentage of results

N = maximum number of scores

n = minimum score sum

RESULTS AND DISCUSSION

In the village of Kemlaten, Parengan District, found 25 wild plants were found that are useful as medicinal and food ingredients that can be obtained from rice fields, fields, around houses, on river banks, and in forests. Pictures of wild plants that have been found are presented in Figure 2-6.

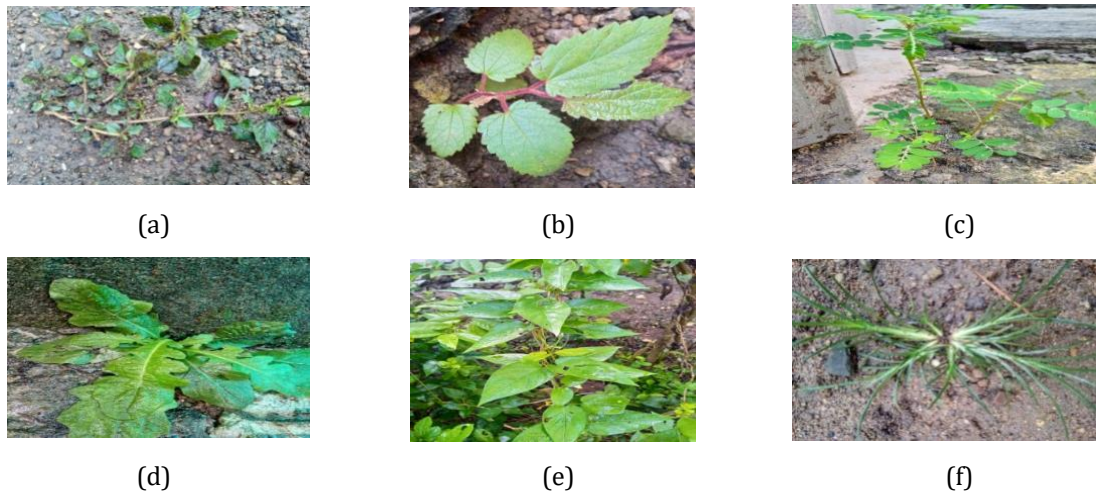


Figure 2. Picture of wild plants found around the house. (a) Bayem Weak (*Amaranthus blitum* L.), (b) Keres (*Muntigia calabura*), (c) Meniran (*Phyllanthus niruri* L.), (d) Tapak leman (*Elephantopus scaber*), (e) Semburan (*Paederia foetida*), and (f) Suket lulang (*Eleusin indica* (L.) Gaertn).

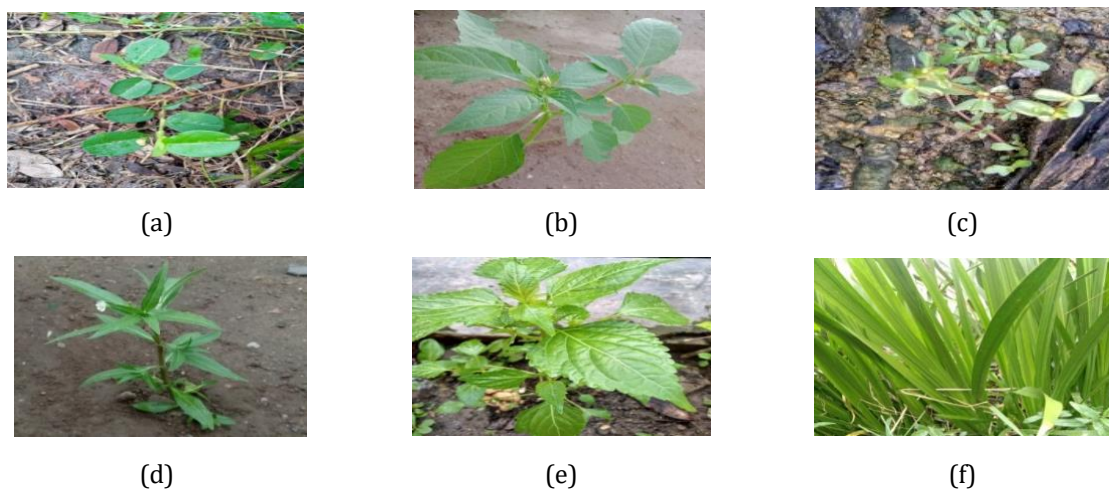


Figure 3. Wild plant found in rice fields. (a) Brobos (*Alysicarpus vaginalis* (L.) DC.), (b) Ceprutan (*Physalis angulata*), (c) Kiyokot (*Portuculata oleracea* L.), (d) Orang aring (*Eclipta prostata*), (e) Sangket (*Maschosma polystaschum*), and (f) Dlingu (*Acorus calamus*).

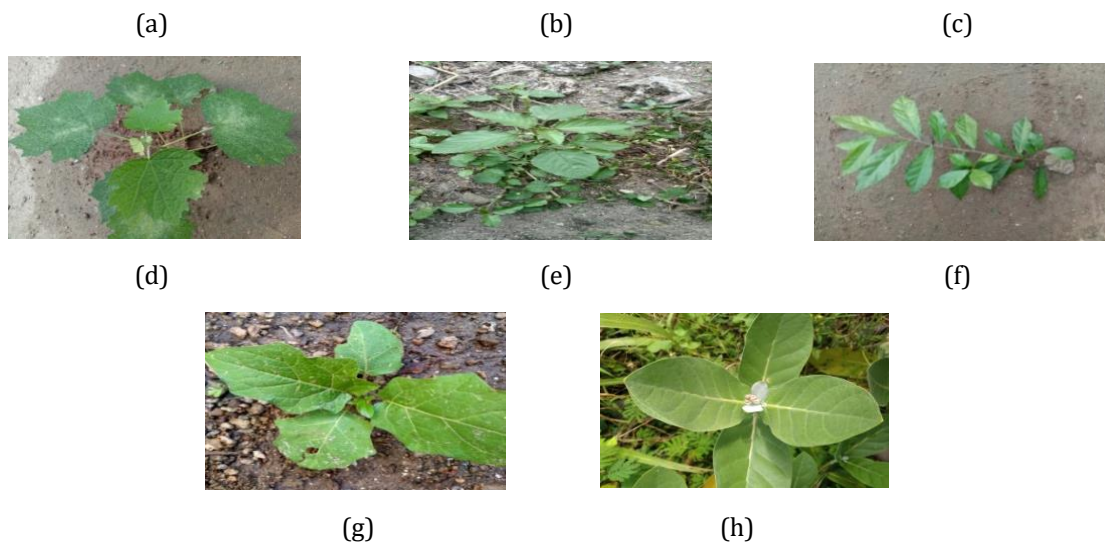


Figure 4. Wild plants found in the fields. (a) Cut (*Allophylus cobbe*), (b) Contoman (*Passiflora foetida*), (c) Klayu (*Erioglossum rubiginosum*), (d) Polotan (*Urena lobata*), (e) Sendekan (*Digera muricata* L. mart), (f) Shaved (*Streblus asper* Lour), (g) Ranti Eggplant (*Solanum nigrum*) and (h) Thistle (*Calotropis gigantea*).



Figure 5. Wild plant found in the forest. (a) Kawis (*Limonia acidissima* L.) and (b) Secang (*Biancacea sappan*).

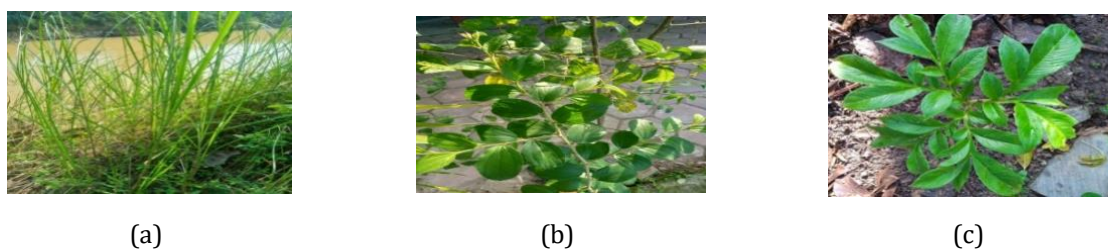
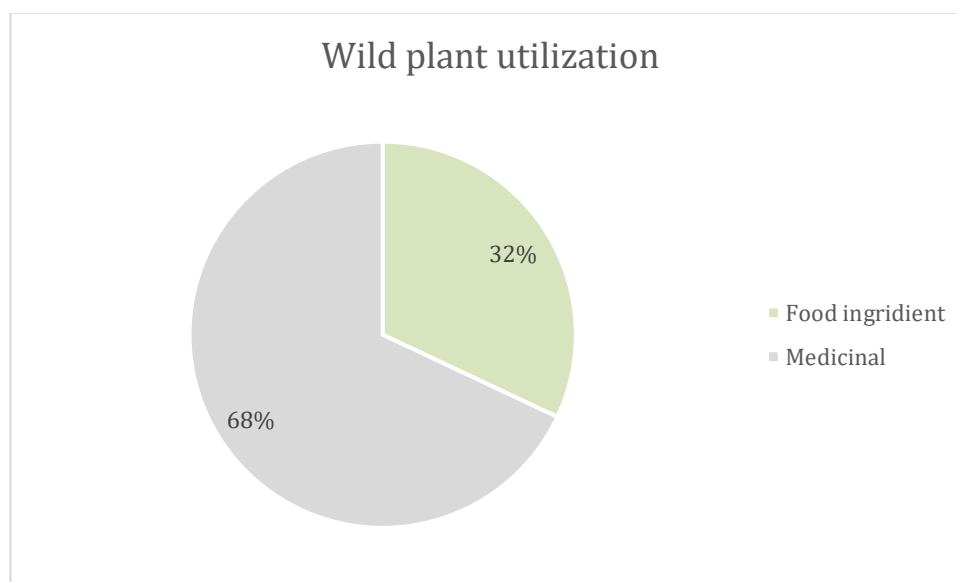


Figure 6. Wild plant found on the banks of the river. (a) Alang-alang (*Imperata cylindrica*), (b) Dara (*Ziziphus mauritiana*) and (c) Suweg (*Amorphopallus muelleri*)

Table 1. Wild plant species and their benefits

Regional name	Latin name	Family	Benefits
Alang-alang	<i>Imperata cylindrica</i>	Graminaceae	Hot medicine
Bayem lemah	<i>Amaranthus blituzm L.</i>	Amaranthaceae	Foodstuffs
Brobos	<i>Alysicarpus vaginalis (L.) DC.</i>	Fabaceae	Boil medicine
Ceprutan (ciplukan)	<i>Physalis angulata</i>	Solanaceae	Foodstuffs
Contoman	<i>Passiflora foetida</i>	Passifloraceae	Foodstuffs
Cukilan	<i>Allophylus cobbe</i>	Sapindaceae	Foodstuffs
Dara	<i>Ziziphus mauritiana</i>	Rhamnaceae	Drug
Dlingu	<i>Acorus calamus</i>	Acoraceae	Fever medicine
Kawis	<i>Limonia acidissima L.</i>	Rutaceae	Food ingredients
Keres	<i>Muntingia calabura</i>	Muntingiaceae	Foodstuffs
Klayu	<i>Erioglossum rubiginosum</i>	Sapidaceae	Foodstuffs
Kiyokot (krokot)	<i>Portuculata oleracea L.</i>	Portulacaceae	Facilitate breastfeeding
Meniran	<i>Phyllanthus niruri L</i>	Phyllanthaceae	Herbal ingredients
Orang-arang	<i>Eclipta prostrata</i>	Asteraceae	Herbal ingredients
Polotan	<i>Urena lobata</i>	Maluaceae	Boil medicine
Sangket	<i>Maschosma polystaschum</i>	Asteraceae	Fever medicine
Secang	<i>Biancacea sappan</i>	Fabaceae	Sciatica medicine
Serut	<i>Streblus asper Lour</i>	Moraceae	Medicine for thorns
Sendekan	<i>Digera muricata L. mart</i>	Amaranthaceae	Foodstuffs
Sembukan	<i>Paederia foetida</i>	Rubiaceae	Stomach ache medicine
Suket lungang	<i>Eleusin indica (L.) Gaertn</i>	Poaceae	Herbal ingredients
Suweg	<i>Amorphopallus muelleri</i>	Araceae	Foodstuffs
Tapak leman	<i>Elephanthopus scaber</i>	Asteraceae	Herbal ingredients
Terong ranti	<i>Solanum nigrum</i>	Solanaceae	fresh vegetables
Widuri	<i>Calotropis gigantea</i>	Apocynaceae	Toothache medicine

**Figure 7.** Percentage of utilization of wild plants as medicinal and food ingredients

Types of Wild Plants used as food and medicine

The utilization of wild plants by Kemlaten villagers is based on teachings passed down from generation. There are 25 species of wild plants from 19 families used as food and medicine ingredients. The 19 families of wild plants are *Acoraceae*, *Amaranthaceae*, *Apocynaceae*, *Araceae*, *Asteraceae*, *Fabaceae*, *Graminaceae*, *Malvaceae*, *Moraceae*, *Muntingaceae*, *Passifloraceae*, *Phyllanthaceae*, *Poaceae*, *Portulacaceae*, *Rhamnaceae*, *Rubiaceae*, *Rutaceae*, *Sapidaceae*, and *Solanaceae* presented in Table 1. The Kemlaten villagers utilize more wild plants as medicinal materials than as food ingredients. The wild plants used as medicine were 17 (68%) of the 25 wild plants found and the remaining 8 plants (32%) were used as food (Figure 7).

Morphology Wild plants used as food and medicine

The wild plants that are ethnobotanically used by the villagers of Kemlaten as medicinal and food ingredients have different morphologies. The following is the morphology of wild plants that used by Kemlaten villagers as food and medicine.

Reeds (Imperata cylindrica)

Reeds are plants that usually live by the river. Reeds are included in the grass family (*Graminaceae*). Utilization of reeds as a sore throat medicine. The use of reeds as medicine has been proven by Zulkarnain et al. [19] which proved that the reeds roots contain the compounds which are antimicrobial, anti-inflammatory, and antioxidant. The compounds known be able to help to relieve heartburn caused by inflammation of the throat. Reeds are plants that have allelopathic properties [20]. The morphology of reeds is as follows. The reeds have knife-shaped leaves with serrated edges and have white midribs. The growth pattern in *Imperata* is circular [21]. The roots of reeds are in the form of rhizomes, the rhizomes of reeds are sharp and can penetrate other plants and can spread in all directions.

Weak Spinach (Amaranthus blitum L.)

Weak spinach is a regional name for wild spinach that grows in the fields or around the house. Weak spinach is included in the *amaranthaceae* family [22]. Weak spinach is usually used by the community as a food ingredient. Weak spinach has ovate leaves with green color and purplish spots. This weak spinach usually lives around the house. Spinach can be used for medicine or for stir-frying.

Brobos (Alysicarpus vaginalis (L.) DC.)

Brobos is a plant that creeps on the ground, this plant can live in various conditions such as heat stress. The brobos plant can be used as green fodder when there is a drought because this plant can live with minimal water conditions [23]. Brobos has an oval leaf shape with flat leaf edges.

Shrimp (Physalis angulata)

Ceprutan or commonly known as ciplukan is a plant from the *Solanaceae* family. Ciplukan has many types, according to [24], there are 1000 types of ciplukan that are known to the public. The plants that belonging to the genus *Physalis* that are known as plants that have several compounds which have activities as antibacterial, anti-inflammatory and anti-cancer [25]. The leaves of ceprutan are green with green stems, some are purplish in color along with purplish or yellow and brown spots on the stems. Ceprutan fruit is protected by flower petals which do not fall off when they become fruit [26].

Contoman (Passiflora foetida)

Contoman (*Passiflora foetida*) is a wild plant that usually lives creeping on the ground or climbing trees [27]. The part of the contoman that is usually used is the fruit, but in other areas in Indonesia the contoman leaves are also used as soup and fresh vegetables [28]. The antioxidant content in the sample can be used as medicine [29]. Contoman leaves are ovoid in shape, 6-9 cm long with shallow, grooved lobes and a hairy leaf surface. Contoman leaf base is heart-shaped and pointed tip. The contoman fruit is covered with yellowish sticky hairs and the fruit is yellow to orange when ripe [30].

Bark (Allophylus cobbe)

Cukilan is a kind of herbaceous plant from the *Sapindaceae* family [31]. Cukilan leaves are commonly used by the people of the village of Kemlaten as raw material for herbal medicine, this is in accordance with research by Najoan et al. [32] which states that cukilan leaf extract contains phenolic compounds, saponins, flavonoids, and steroids. This cut has an elongated leaf shape with a tapered leaf tip.

Dara Leaf (Ziziphus mauritiana)

Dara is a wild plant that can live in areas that lack water. Dove leaves have an oval shape with a tapered tip. The virgin leaves have a green color and the underside of the leaves is greenish white. Virgin leaves contain bidara leaves which are antimicrobial, analgesic, anti-inflammatory, antioxidant, anti-cancer and anti-diabetic [33].



Dlingu (Acorus calamus)

Dlingu is a wild plant from the Acoraceae family. Dlingu has many types of yangan in Indonesia [34]. Dlingu is a rhizome type plant that has a distinctive aroma, the rhizome on dlingu is pink on the skin and white on the flesh [35] and dlingu has needle-shaped leaves. Dlingu is believed to be a febrifuge for several ethnic groups in Indonesia [36], one of which is for residents of the village of Kemlaten. Dlingu contains pentobarbital, hexobarbital and ethanol compounds which can relax the body thereby reducing seizures in children and fever [37].

Kawis (Limonia acidissima L.)

Kawis is a fruit plant that can be found wild in the forest. This kawis belongs to the Rutaceae family [38]. This plant has a breech ovoid leaf shape with leaf bases that vary between blunt-taper-taper, the tips of the leaves are blunt-split. Light green leaf color. Kawis fruit has a hard, thick skin and many seeds and has soft, brownish flesh [39]. Kawis leaves contain phenols, terpenoids, flavonoids, tannins and saponins [40]. Kawista fruit has a weak antioxidant because it does not contain ascorbic acid [41].

Keres (Muntingia calabura)

Keres is a wild plant from the Muntingiaceae family. Keres usually grows wild and is commonly used by residents as livestock feed and its ripe fruit is commonly consumed. Keres leaves are green with fine hairs, the shape of the leaves is oval with a serrated surface and the arrangement of the leaves on the stem is alternate [42]. Ripe keres fruits are red and the unripe ones are green [43]. Keres fruit contains vitamin C so it can be used as an antioxidant [44].

Klayu (Erioglossum rubiginosum)

Klayu is a woody plant that is used for its fruit and leaves. Klayu fruit by residents is taken to eat and the leaves are used as herbal medicine. Klayu is a woody plant with a height of up to 15 m. Klayu leaves are compound leaves facing each other and have an oblong shape. The type of flower on the klayu is a compound flower with a malay shape which is located inside one stalk [45].

Kitolot (Portuculata oleracea L.)

Kitolot or in Indonesian it is referred to as purslane is a herbaceous plant that has many types and has various forms and variations of flowers (sari, 201. Both the leaves and flowers of kitolot can be used for both leaves and flowers, purslane leaves can be utilized. Kitolot leaves can be sautéed and the flowers, besides being edible can be used as food garnishes. The compounds

contained in kiyokot have analgesic, anti-inflammatory, antioxidant and immunodemulator properties. The position of kiyokot leaves is opposite to its bisexual flowers. Kiyokot flowers have 4-5 petals.

Meniran (Phyllanthus niruri L.)

Meniran comes from the Euphorbiaceae family which lives in subtropical and tropical areas, this wild plant contributes greatly to medicine [46]. Meniran has light green to dark green stems, each branch consists of 8-13 leaves, has white male flowers under the leaf axils and white female flowers located above the leaf axils [47]. The morphology of meniran leaves is oblong in shape, with a blunt leaf base, a tapered leaf tip. meniran has pinnate leaves with a smooth surface and a yellowish-white taproot [48]. Residents of the village of Kemlaten meniran are used as an ingredient in gepyok herbal medicine. Apart from the villagers of Kemlaten, the Dayak tribe also uses meniran as a topical medicinal ingredient. Meniran extract contains flavanoids, steroids, tannins, phenolics, alkaloids and saponins [49].

Aring (Eclipta alba L. Hassk)

Orang-aring is a wild plant that is used by the villagers of Kemlaten as an ingredient for making herbal medicine. The ingredients in orang-aring extract are sterols, terpenoid alkaloids, and flavonoids [50] and have antidermatophytic properties [51]. These compounds are useful in inhibiting the activity of *Colletotrichum* sp. [52]. Orang-aring has lanceolate leaf shape, obtuse leaf base and pointed leaf tip. The paper-like leaves with flat edges and limited compound interest [53].

Polutan (Urena lobata)

Polotan is a plant that has been trusted by some Suda and Makassar peoples as a medicinal ingredient, one of which is boils [54]. Polotan is a type of shrub that has fruit with many fine thorns, leaf shapes vary from ovate, oval to lanceolate and incised, solitary white flowers, and round green fruit with a diameter of 1 cm [55].

Sangket (Maschosma polystaschum)

Sangket usually lives in fields or rice fields. Sangket is a kind of shrub with round, erect, woody stems with a height of 20-90 cm. Single leaf, oval, pointed tip, serrated edge, tapered base, 4-9 cm long, 2.5-5 cm wide, pinnate bone, hairy, green color [56].

Secang (Biancacea sappan)

Secang is a wild plant that many people use as medicine. Secang stems are used as medicine. The sappan wood has a red color [57]. Secang is a wild

plant that belongs to the Leguminosae family which is known as a sapan like its species name [58]. Secang has a type of compound leaf with rounded leaflets. The sapan stem has thorns and is red inside [59].

Shaved (Streblus asper Lour)

Shaved is a wild plant that usually grows in the fields and is used as a fence. Shaved is also beneficial for life, one of which is used as a medicine for people who are pricked by thorns. The use of this drug by the Kemlaten villagers is based on ancestral secrets, but upon closer examination it turns out that the sap contains protease enzymes and can inhibit microbes [60].

Sendekan (Digeria muricata L.)

Sendekan is a wild plant from the Amaranthaceae family. Sendekan is an annual plant that is included in herbaceous plants [61]. Kemlaten villagers use sendekan as a vegetable that can be picked in the fields without having to buy it. It turns out that sendekan is a wild plant that can treat several diseases. Sandalwood can be used as a medicine for diabetes, constipation, phlegm thinner, astringent, and disorders of the urinary tract [62].

Sembuh (Paederia foetida)

Semburan belongs to the Rubiaceae family. Sembuh is famous for having a pungent foul odor when picked or in the afternoon [63]. Sembuh has a dark green jorong leaf shape. This plant belongs to the vines. The tip of the leaf on the leaf is tapered with a rounded leaf base. Sembukan leaves contain flavonoids which belong to the class of antioxidants [64]. The people of the village of Kemlaten use Sembukan as a medicine for flatulence and pain in the digestive tract. The use of sembukan leaves as a medicine for the digestive tract has been proven by research [65].

Suket lulang (Eleusin indica (L.) Gaertn)

Suket lulang is a wild plant that often appears around the yard or in the rice fields [66]. The leaves of suket lulang are ribbon-shaped with a pointed tip and a tapered leaf base. This lulang suket can be used by residents of the village of Kemlaten as herbal medicine. The part that is hard to use is the root [67].

Porang (Amorphopallus muelleri)

Porang also known as iles-iles or suweg is a wild plant that usually lives on the banks of rivers. Suweg leaves are dark green and elongated in shape. The upright stems are light green with white spots. Suweg tubers are yellow [68]. People consume suweg as a substitute for rice during the dry season, but currently suweg is only used as a complement during kaleman events. However,

now many innovations are being made to improve the quality of porang, namely by making it into chips [69].

Tapak leman (Elephantopus scaber)

Tapak leman is a plant that has a rosette stem shape with elongated leaf shapes. The color of the tapak leman is dark green. Tapak leman commonly used as herbal medicine is the light brown part of the root [60]. The compounds contained in tapak leman roots are alkaloids vinblastine, vincristine, leurozin and vincadiolin [70].

Eggplant ranti (Solanum torvum)

Ranti eggplant has an oval leaf shape with cangaps. Ranti eggplant leaves include single leaves that have a green color with a hairy leaf surface [71]. Ranti eggplant fruit is green and has many seeds. Ranti eggplant fruit is used as a vegetable ingredient or for fresh vegetables [72].

Thistle (Calotropis gigantea)

Thistle is a type of shrub that can reach a size of 3 meters. The shape of thistle stem is cylindrical with sympodial branches [73]. Thistle ovale leaf shape with rounded leaf tips and rounded leaf bases. Thistle has a white and sticky sap. The sap is used as a medicinal ingredient [74].

CONCLUSION

Based on the results and discussion above of research that has been done it can be concluded that there are 25 species of wild plants that are used as food and medicine by the villagers of Kemlaten. These wild plants of are belong to 19 families with a percentage of 32% used as food and 68% used as medicinal or herbal ingredients. The morphology of these wild plants differs from one another, according to the species or family and is dominated by single-leaved and woody plants.

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