Local wisdom of Cikondang village community in the utilization of medicinal plants

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Abstract. This study aims to analyze local wisdom Cikondang community in the use of medicinal plants. This research used qualitative method with emic and ethical approach to explain the relationship of public knowledge about the type and utilization of medicinal plants in the view of science. Determination of respondents conducted by purposive sampling, taken 30% of the total respondent. The data of the knowledge of the use of medicinal plants obtained through interview techniques as many as 39 respondents. Cikondang people know 27 known medicinal plants and commonly used. Zingiberaceae family has a type that is more widely used as a medicinal plant. The most widely used plant part is leaf and medicinal plant processing which mostly done by boiling. The species with the highest value of use is owned by Curcuma longa L. with a value of 4.28, which states important species / priorities, while the species with the lowest SUV value is Aracchis hypogaea L. of 0.15, which states species are less important and can be replaced by other plants.

1. Introduction
The use of traditional medicine is generally considered safer than a modern medicine. This is because traditional medicine has fewer side effects than modern medicine [1]. Traditional medicine processing process in general is very simple, including there is brewed with water, made powder then dissolved in water, some are taken the extract; the way treatment is generally done by way of drinking [2].

Cikondang community wisdom of the utilization of medicinal plants has been done since the first. Researchers want to conduct research on local wisdom of the use of medicinal plants in the yard of residents in Cikondang, because no previous research has been done in these locations. Therefore it is necessary to conduct research to prove the knowledge of local people what do empirically from time to time scientifically proven can be accounted for. Research in Kampung Adat Cikondang Indonesia has been done by experts, especially the ethnobotany has never done. Traditional knowledge and local wisdom include, among others, plant-based or plant-based treatments.

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Traditional herbs 12 ethnic Indonesian stated the plants that have been used by humans since thousands years ago to maintain health and treat various diseases [3]. Society has knowledge in the benefits of medicinal plants for generations. There have been no tests of the efficacy of medicinal plants scientifically, but knowledge is passed down from generation to generation on the benefits of medicinal plants by surrounding communities. How to use plant doses used on the basis of knowledge they believe in and proven to cure some diseases. Knowledge of local wisdom of medicinal plants is now beginning to fade, along with the times. Indonesians, especially those living in urban areas, have not used traditional crop-based medicines in health and medicine [4]. They think that many drug products that use herbal ingredients that have a benchmark price are high enough. The presence of progress in the field of technology and the development of an increasingly modern culture resulted in declining knowledge of local wisdom in the use of medicinal plants among young people. Instant lifestyle causes the knowledge of local wisdom of medicinal plants considered not too important because it is considered impractical. As a result, medicinal plant resources are no longer preserved and well maintained. The loss of these values is due to the lack of a balance between technological advances and the knowledge of local wisdom that causes moral, ethical, health and environmental problems. Life in urban areas is different from the conditions in some areas that have local wisdom values that are still upheld. This condition distinguishes between urban environment and Kampung Cikondang. The home environment in Cikondang village is still planted with several types of medicinal plants believed to be able to cure certain diseases, and each house has one fish pond and it is seen from all houses of Cikondang villagers.

2. Methods
Qualitative method that is a process of research and understanding that investigates a social phenomenon and a human problem. This study was collected data through the form of written or oral sentences derived from the respondents and behavior that can be observed in this research method. The researchers create a complex picture, examine the words, detailed reports from the views of respondents and do in a natural situation [5]. Emik approach is done to dig and get data about people's knowledge of the object being observed from their perspective and language [6]. Furthermore, the system of knowledge and cognition, community knowledge in the form of conceptual rules, categories, codes, and cognitive rules (emik) are discussed and analyzed based on conceptual categories obtained with a scientific background (ethics) [6].

The study was conducted in June 2017 in Kampung Cikondang, which is administratively included in Lamajang Village, Pangalengan District, Bandung Regency. Georaphically Kampung Adat Cikondang is located on 6 43’ 0” S, 107 13’ 33” E. Community knowledge in the utilization of medicinal plants was obtained through interviews with 30% of total Family [6], customary figures, and key informants. Interviews conducted in Cikondang on 39 representatives of each family who were respondents to know the knowledge of the community about the use of medicinal plants.
The data collection of local knowledge was used in interviewing techniques (standardized interview), unstandardized interviews, and casual interviews to respondents [7], using interview sheets of Semi-structured Interview and Structured Interview, observation and documentation.

3. Results and Discussion

3.1. Utilization of medicinal plants

From the results of interviews with all respondents about the use of medicinal plants, the types of medicinal plants used in medicine in the village Cikondang there are 27 types of medicinal plants are often used by residents. The use of medicinal plants that are still believed, because this tradition is passed down from generation to generation by ancestors since the first. These plants are used in treating certain diseases. Interviews conducted in Cikondang on 39 representatives of each family who were respondents to know the knowledge of the community about the use of medicinal plants. Utilization of medicinal plants can be seen in Table 1.

| Number | Types of plants | Family      | Part of the plant used | Benefits (as a medicine)          | Processing Way by Society |
|--------|-----------------|-------------|------------------------|-----------------------------------|--------------------------|
| 1.     | Kaempferia galangal | Zingiberaceae | Rhizomes                | Reduces blood pressure             | Crushed, boiled           |
| 2.     | Piper betle L.    | Piperaceae   | Leaf, Fruit            | Prickly heat, Allergy, Red eyes    | Boiled, roasted, crushed, instantly used |
| 3.     | Curcuma longa L.  | Zingiberaceae | Rhizomes                | Body odor removal, Wounds, Wound   | Crushed, boiled, shredded, spooned |
| 4.     | Orthosiphon aristatus | Lamiaceae    | Leaf                    | Back pain, Diabetes                | Boiled                   |
| 5.     | Allium cepa L.    | Liliaceae    | Tubers                  | Colds, Cold, Child fever decreases | Crushed                  |
| 6.     | Allium sativum Annona murikata | Liliaceae | Tubers                    | Bloated                          | Crushed                  |
| 7.     | Linn,            | Annonaceae   | Leaf, Fruit            | Stopping the development of cancer cells | Boiled, crushed, ground |
| 8.     | Alpinia galangal  | Zingiberaceae | Rhizomes                | Skinache, panu                    | Crushed, boiled          |

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| Number | Types of plants          | Family                | Part of the plant used | Benefits (as a medicine)                                      | Processing Way by Society |
|--------|--------------------------|-----------------------|------------------------|---------------------------------------------------------------|---------------------------|
| 9.     | *Zingiber officinale*    | Zingiberaceae         | Rhizomes               | Kidney blood cleanser Body warmers                            | Boiled, crushed           |
| 10.    | *Coleus atropurrieus*    | Amaranthaceae         | Leaf                   | Whitish Inflammation of the ear                              | Boiled, crushed           |
| 11.    | *Kalanchoe pinnata* (Lam.) | Cerrassulaceae      | Leaf                   | Headache                                                      | Crushed                   |
| 12.    | *Psidium guajava*        | Myrtaceae             | Leaf                   | Diare                                                         | Boiled, crushed           |
| 13.    | *Musa paradisiaca*       | Musaceae              | Leaf, stem, stem bark  | Jaundice Blisters Stop the blood on the wound                 | Squeezed, grated, boiled  |
| 14.    | *Carica papaya L.*       | Caricaceae            | Leaf                   | Burns, Malaria, stiff Stomache                               | Directly used, ground, shredded |
| 15.    | *Cymbopogon nardus*      | Poaceae               | Stem                   | Kidney blood cleanser                                         | Heated                    |
| 16.    | *Talinum paniculatum* (Jacq.) | Portulacaceae    | Leaf, root             | Back pain, Wounds                                             | Boiled, crushed           |
| 17.    | *Inverata cyllindrica* (L.) | Poaceae               | Root                   | Flu                                                            | Baked, boiled             |
| 18.    | *Manihot esculenta*      | Euphorbiaceae         | Leaf                   | Sore eyes Toothache and white tongue in infants              | Soaked, instantly used    |
| 19.    | *Jatropha curcas* L.     | Euphorbiaceae         | Leaf                   | To eliminate smallpox                                         | Crushed                   |
| 20.    | *Aracchis hypogaea L.*    | Fabaceae              | Seed                   | eliminating smallpox                                           | Crushed                   |
| 21.    | *Lycopersicum esculentum* | Solanaceae            | Leaf                   | Panas dalam                                                   | Boiled, directly used     |
| 22.    | *Artocarpus altitlis*    | Moraceae              | Leaf                   | Stomach ache                                                   | Boiled                    |
| 23.    | *Morinda citrifolia*     | Rubiaceae             | Leaf                   | Hot fever                                                      | Directly used, ground     |
| 24.    | *Artocarpus heteropyllus*| Moraceae              | Leaf                   | Diare                                                          | Boiled, crushed           |
| 25.    | *Persea americana*       | Lauraceae             | Seed                   | Toothache                                                      | Directly used, kneaded    |
| 26.    | *Tamarindus indica* L.   | Fabaceae              | Fruit, leaf            | relieve cough                                                  | Boiled, soaked            |
| 27.    | *Averrhoa carambola*      | Oxalidaceae           | Fruit, leaf            | Uric acid High blood pressure                                 | Boiled                    |

Based on Table 1 obtained data on local wisdom in the use of medicinal plants as many as 27 plants used as a drug by the community Cikondang to address some health problems experienced by the local community. Medicinal plants are *Kaempferia galanga, Piper betle L., Curcuma longa L., Orthosiphon aristatus, Allium cepa L., Allium sativum, Annona murikata Linn, Alpinia galangal, Zingiber officinale, Coleus atropurrieus, Kalanchoe pinnata (Lam.), Psidium guajava, Musa paradisiaca, Carica papaya L., Cymbopogon nardus, Talinum paniculatum (Jacq.), Manihot esculenta, Jatropha curcas L., Aracchis hypogaea L., Lycopersicum esculentum, Artocarpus altitlis, Morinda citrifolia, Artocarpus heteropyllus, Persea americana, Tamarindus indica L., dan Averrhoa carambola.*

3.2. Knowledge of Respondents on Types and Methods of Medicinal Plant Utilization

Interviews conducted in Cikondang on 39 representatives of each family as a respondents to know the knowledge of the community about the use of medicinal plants. Knowledge utilization of medicinal plants can be seen in Figure 2.
The process of learning about the use of plants that can be used as a medicine is generally done in the family environment (taught by hereditary). The respondents stated that the knowledge of medicinal plants can be from parents, grandparents or great-grandparents. In addition, knowledge is gained through learning directly in the field and daily experience.

### 3.3. Use Value of Medicinal Plants

The results of research on the value of medicinal plants in Cikondang community, Lamajang village can be seen in Table 2 below this.

| No. | Types of plants | Total UVs | Use value (UVs) |
|-----|-----------------|-----------|----------------|
| 1   | Kaempferia galanga | 156       | 4.0            |
| 2   | Piper betle L.    | 132       | 3.38           |
| 3   | Curcuma longa L.  | 167       | 4.28           |
| 4   | Orthosiphon aristatus | 50       | 128            |
| 5   | Allium cepa L.    | 72        | 1.85           |
| 6   | Allium sativum    | 61        | 1.56           |
| 7   | Annona murikata Linn. | 75       | 1.92           |
| 8   | Alpinia galanga   | 89        | 2.28           |
| 9   | Zingiber officinale | 147      | 3.77           |
| 10  | Coleus atropurrius | 42       | 1.07           |
| 11  | Kalanchoe pinnata (Lam.) | 50       | 1.28           |
| 12  | Psidium guajava   | 91        | 2.3            |
| 13  | Musa paradisiaca  | 50        | 1.28           |
| 14  | Carica papaya L.  | 86        | 2.2            |
| 15  | Cymbopogon nardus | 31        | 0.79           |
| 16  | Talinum paniculatum (Jacq.) | 9        | 0.23           |
| 17  | Inverata cylindrica (L.) | 18       | 0.46           |
| 18  | Manihot esculenta | 28        | 0.72           |
| 19  | Jatropha curcas L. | 135       | 3.46           |
| 20  | Aracchis hypogaea L. | 6        | 0.15           |
| 21  | Lycopersicum esculentum | 46       | 1.18           |
| 22  | Artocarpus altis  | 25        | 0.64           |
| 23  | Morinda citrifolia | 41        | 1.05           |
| 24  | Artocarpus heterophyllus | 62       | 1.59           |
| 25  | Persea americana  | 51        | 1.3            |
| 26  | Tamarindus indica L. | 40       | 1.02           |
| 27  | Averrhoa carambola | 38        | 0.97           |

Species found to be treated to treat a disease. The highest use value of the plant is turmeric / Curcuma longa L. (4.28) and the lowest use value is groundnut /Aracchis hypogaea L. (0.15) indicates the use value of species "Species Use Value" (SUV) describes the use value of plant species in treating a category of disease based on the category of disease that has been provided. From the research results
have been identified morphologically and based on the knowledge of respondents Cikondang community in the utilization of medicinal plants obtained as many as 27 species of plants used / known by the Cikondang community as a traditional medicine. Species found to be treated to treat a disease. The highest crop use value is turmeric/Curcuma longa L (4.28) and the lowest use value is groundnut/Arachis hypogaea L(0.15).

3.4. Discussion

Kampung Cikondang is located in Bandung regency, with borders from the north bordering with Cipinang Village, Cimaung District, south of Tilu Forest Forest and Sari Village, Pangalengan Subdistrict, from east of Cisangkuy River Basin and Tribakti Village, West Suka Maju Village Cimaung District. Community Knowledge in the utilization of medicinal plants.

The utilization of medicinal plants known by Cikondang community based on interview result can be seen in Table 1 Overall data obtained from 39 people Cikondang community shows as many as 27 types of medicinal plants equipped with a way of utilization as a medicinal plant. The local wisdom of the Cikondang community in the utilization of medicinal plants are still simple, done with simple processing, and is believed to cure. Actually, Cikondang community in the field of health has many who use modern medicine through medical treatment with the services of doctors, because the education community Cikondang also had many who graduated from college. In the utilization of medicinal plants people still preserve if exposed to certain diseases, and have a spare time to make the plants needed as medicine. The dosage of the plant used is still in its simplest form, and there is no fitting size, only on the basis of whether the estimate is appropriate or not. However, it is still down to now, and the knowledge of the Cikondang community still exists today, which is passed on orally either derived from the family, learning from experience, or asking the neighbors in the home environment. Data collected 27 ways of using medicinal plants, obtained from different respondents and after analyzed almost all respondents have almost the same knowledge about how to cultivate medicinal plants, to treat what diseases, how to use them. How to use medicinal plants by the community is still simple, usually medicinal plants just boiled, then drink the water. There are also medicinal plants that are directly eaten, pounded, shredded, or banned on fire. Some of the knowledge of local wisdom is proven to survive, not because of age, sex, but because the knowledge passed down orally either from the family, learn from experience and social relationships with other communities. From generation to generation it has been passed down to one generation to the next, but in every region or tribe has its own distinctive cultural traditions [8]

The plant part used for medicine by Cikondang people is mostly on the leaf, while the least used part is the bark. In some studies of medicinal plants are often and commonly used is the leaf. Conservatively the use of leaves is too damaging to these plants [9]. Parts of plants that are often used include roots, stems, leaves, fruits, flowers and seeds [10]. In each part of the plant contains different substances. Leaves have the most chemical content in comparison with other plant parts. Most research on medicinal plants in Indonesia says that the leaves are the most commonly used plant parts. Concluded that the habitus of medicinal plants is mostly tree, while the most widely used plant part is leaf [11]. Leaves are parts of plants that are widely used as a drug, substances that are widely found in the leaves are essential oils, phenols, potassium compounds, and chlorophyll [12]. Leaf has a high regeneration to re-sprout and does not give a big influence on the planting of a plant even though the leaves are a place of photosynthesis [13]. In addition to being easy to obtain and not dependent leaf season is also easily mixed into a drug when compared with skin, stems and plant root [14].

Utilization of leaf parts for medicine easier way of processing. In addition to having a better efficacy compared with other plant parts. The use of leaves also do not damage other parts of organs. This is because the leaves are easy to grow back and can be used continuously until the plant is old and dead [15]. In addition, the number of leaves that is used as medicine as much (51%) because in this section more types of compounds found nutritional chemicals such as flavonoids, tannins, saponins, phenols and alkaloids. With the chemical content of the leaf has a lot of drug potential. In addition, the leaves are also the most part so that if some of the leaves fall still there are other leaves and the utilization of
leaves is not has a great influence on the cultivation of a species compared to the stem or root of the plant [12]. Ingredients that must be mixed with other ingredients for the purpose of the purpose is more complete because each part of each plant has a chemical content of various and various benefits, so that if all used it will be quickly treat a disease. From various kinds of medicinal plants processing is processing by way of boiled and then filtered and drunk is the most widely done processing [16].

Table 2 shows the calculation of the value of medicinal plants known and used by Cikondang people in treating a disease. The calculations show that there are 5 species that show the highest use value such as Curcuma longa L. with the use value 4.28, Kaempferia galanga has a value of 4.0, Zingiber officinale has a value of 3.77, Jatropha curcas L. has a value of 3.46 and Piper betle L. with use value 3.3, while the lowest use value of medicinal plants known and used by the Cikondang community is groundnut/Araceh hypogaea L. of 0.15. There are five plants most known benefits by respondents who come from the family Zingiberaceae, Euphorbiaceae and Piperaceae. because in addition to being used as a medicinal plant, the two families are often used in everyday life not only by villagers Cikondang, other communities also use these plants. The highest SUV yield on these five crops belong to the species category of important species/priority species, because it have a range of more than 3 values. Based on interviews with respondents, Curcuma longa L. used to treat body odor, ulcers, stomach and tonsil. Curcuma longa L. belongs to the category of important species because many Cikondang people use this plant, many home yard planted by this plant, in addition to having many health benefits, Curcuma longa L. used in daily life as a spice cuisine, as flavoring, neutralizing odor on cooking and natural dyes. Turmeric is widely used of the food, beverage, cosmetics and textile industries. The lowest usage value is Aracchis hypogaea L. with SUV value of 0.15. which means that the plant is a less important species/species not a priority. Species that have low value due to rarely used as a medicine. That plant can be replaced with other plants. This plant is known to be used to remove smallpox marks, but it is rarely used and can be replaced with other plants known and used by the Cikondang community, for example by using Tamarindus indica L. plant with the same SUV value (1.02) is believed to eliminate the scars smallpox is Aracchis hypogaea L.

4. Conclusion
The number of medicinal plant species known and utilized by the Cikondang community is about 27 plant species from 19 families. With the largest number of Zingiberaceae family there are four types of medicinal plants commonly used: Curcuma longa L, Alpinia galanga, Zingiber officinale and Kaempferia galanga. Utilization of medicinal plants based on the parts used such as leaves, fruit, rhizome, stem, roots, bark and tuber. With the most widely used parts of the leaf as a medicine, while the least used part is the bark of the stem. Utilization of medicinal plants based on the processing method that is pounded, boiled, banned, heated, soaked and used directly without processing, processing is mostly done by the community Cikondang through boiling. The calculation of "Species Use Value" shows the use of valuable plant species as a drug for the Cikondang community. The species with the highest value of use is owned by Curcuma longa L., while the species with the lowest SUV value is Aracchis hypogaea L.

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