PENGETAHUAN TUMBUHAN OBAT MASYARAKAT ADAT KAMPUNG DUKUH, GARUT, JAWA BARAT

MEDICINAL KNOWLEDGE OF TRADITIONAL COMMUNITY IN KAMPUNG DUKUH, GARUT REGENCY, WEST JAVA

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Abstrak

Masyarakat adat Kampung Dukuh, Cikelet, Kabupaten Garut, Jawa Barat masih mempertahankan tradisi leluhurnya terutama dalam pengobatan tradisional. Penelitian ini bertujuan untuk mendokumentasikan tumbuhan obat yang digunakan oleh masyarakat Kampung Dukuh. Metode yang digunakan adalah pendekatan etnobotani. Data yang dikumpulkan adalah daftar tumbuhan obat yang diketahui, lokasi tempat diperoleh atau ditanam, dan kegunaan masing-masing jenis tumbuhan tersebut. Identifikasi dilakukan di Herbarium Bandungense SITH-ITB. Lokalitas dan kegunaan masing-masing tanaman obat dikumpulkan dengan menggunakan wawancara semi terstruktur. Hasil penelitian menunjukkan bahwa masyarakat Kampung Dukuh mengklasifikasikan penyakit menjadi tiga yaitu penyakit biasa, penyakit karena sihir, dan penyakit yang disebabkan oleh makanan. Sebanyak 131 jenis tumbuhan dari 51 suku tercatat dimanfaatkan masyarakat sebagai obat. Lima suku dengan jumlah spesies terbanyak adalah Zingiberaceae, Poaceae, Asteraceae, Fabaceae, dan Solanaceae. Jenis penyakit yang disebabkan dengan memanfaatkan tanaman obat yang paling banyak adalah perawatan sebelum dan sesudah melahirkan. Masyarakat memperoleh tanaman dari lima lokasi: kebon (kebun), leuweung (hutan), halaman rumah, pinggir jalan, dan huma (lahan pertanian kering). Hasil penelitian ini menunjukkan bahwa masyarakat Kampung Dukuh mengintegrasikan budaya penggunaan tumbuhan obat dengan upaya pelestarian keanekaragaman hayati setempat.

Kata kunci: Etnobotani; Kampung Dukuh; Pengetahuan tradisional; Tumbuhan obat

Abstract

Traditional community of Kampung Dukuh, in Cikelet, Garut Regency, West Java still keep their ancestral tradition alive, especially the traditional healing. This study aims to document the medicinal plants used by the people of Kampung Dukuh. Method used was ethnobotanical approach. Data collected were the list of medicinal plants known, locations the species obtained or planted, and the utility of each species. Identification was done at Herbarium Bandungense SITH-ITB. Locality and the utility of each medicinal plant were collected by using the semi-structured interview. The result showed that people of Kampung Dukuh classified illness into three: common illness, illness by magic and disease caused by food. A total of 131 species from 51 families of plants were recorded to be recognized and used by the community as medicines. Five families with the most number of species were Zingiberaceae, Poaceae, Asteraceae, Fabaceae, and Solanaceae. Type of medical condition mostly by utilizing medicinal plants was pre and post-partum care. People obtained plants from five locations; kebon (garden), leuweung (forest), buraun (home garden), sidewalk, and huma (dry farm). This research indicated that people of Kampung Dukuh integrated the culture of using medicinal plant with conservation effort of local biodiversity.

Keywords: Ethnobotany; Medicinal plants; Kampung Dukuh; Traditional knowledge

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INTRODUCTION

For a long time, humankind has always been using medicinal plants as conventional medicine to heal diverse ailments. Approximately 30,000 of a total 40,000 species of medicinal plants known in the world are allegedly located in Indonesia (Munadi, 2017). Medicinal plants have played an important role in managing a variety of healthcare and diseases in Indonesia. In some developing countries like Indonesia, people continue to use natural plants, especially in meeting basic health needs (Hernani, 2011).

Indonesia has the traditional healing culture known for hundreds of years ago which is passed down through generations. For instance, jamu, a traditional medicinal tonic, is widely known by Indonesian people. Footprints of traditional use of medicinal plants in Indonesia are well captured in the ancient original manuscript like Husodo Lontar Leaf (Java island) (Gunawan, Ramadhan, Iskandar, & Partasamita, 2018), Usada (Bali island) (Suatama, 2019), Lontarack Pabbaru (South Sulawesi) (Kusumah, 2017), Primbon Jambi Fibre document and Fibre of Blend Boreh Wulang nDalem. Some authentic proofs of traditional medicinal processing are shown on the relief of Borobudur wall, one of the most stellar temples in Indonesia (Sari, 2006).

Modernization is the ultimate obstacle in preserving the sustainability of traditional medicinal knowledge. Culture erosion can lead to the loss of traditional knowledge of traditional people (Bodeker, 2000; Brosi, Balick, Wolkou, Lee, & Kostka, 2007; Ramirez, 2007). Other factors related to the expedite loss of traditional knowledge are the loss of biological resources, cultural homogenization and the disappearance of practices involving these plants (Balick, 2007), also increased accessibility to public health cares and improved transportation infrastructure (Weckmüller, Barriocanal, Maneja, & Boada, 2019). The disappearance of traditional medicinal knowledge, particularly on plants utilization is due to the fact that it is only passed through generations orally and has remained unwritten (Kaido, Veale, Havlik, & Rama, 1997; Rahman, Fardusi, & Reza, 2011). In fact, the depletion of intergenerational traditional knowledge has occurred in community living in Kampung Kuta, Ciamis, West Java Indonesia. Traditional knowledge of local people in Kampung Kuta in recognizing the medicinal plants was threatened to be extinct (Dwiartama, 2005). Hence, the documentation of traditional knowledge of medicinal plants is needed.

Sundanese ethnic in West Java, one of many ethnic groups in Indonesia, has been practiced traditional medicinal knowledge daily (Gunawan et al., 2018). One of the traditional communities of Sunda ethnic that still keeps their ancestral tradition alive is Kampung Dukuh community in Cikelet, Garut Regency. West Java Province. Kampung Dukuh is surrounded by natural resources, thus there is a strong relationship between people of Kampung Dukuh and nature. They keep many routine rituals to respect nature, such as Ngahaturan tuang (offering food to ancestor), Nyanggakeun (offering some farm yields to kuncen-sacred forest caretaker), Tilu waktos (offering food for the earth by kuncen) and many more. The community is dependent and respecting nature. Furthermore, the community obeys five ancestral principles related to nature, namely larangan (sacred forest), tutupan (nature is entrusted by an ancestor), tutupan (keeping tree cover around the hamlet), garapan (land allowed to be cultivated), and cadangan (reserved land). The essence of these principles is that people may still use nature but still respect and maintain the carrying capacity of nature itself. This study aims to document and explore the knowledge of traditional people of Kampung Dukuh in recognizing and processing medicinal plants for the treatment of various ailments. The record of these plants and their uses will provide baseline data for future phytochemical and pharmacological studies.

MATERIALS AND METHODS

Study Area

Figure 1 shows the map of Kampung Dukuh. It is situated on south part of Garut Regency, part of the south coast of Java Island. Kampung Dukuh is administratively located in Cijambe hamlet, Cikelet area, Garut Regency, West Java Indonesia. The distance between Kampung Dukuh and the capital of Garut Regency is about 100 km or 160 km from...
Bandung (capital of West Java Province) to the south. The altitude of Kampung Dukuh is 390 m above sea level. Kampung Dukuh is located on the sloping land of Dukuh mountain. The zone is between latitudes of 7–8 °S and 70–108 ºE. The average temperatures is 26 °C. Kampung Dukuh covers 10 ha area, consist of Dukuh Landeuh (outer hamlet) (7 ha), Dukuh Tonggoh (inner hamlet) (1 ha), and bare land (2 ha). Most of the inhabitants are farmers.

Etnobotanical Data Collection

The method of this study was descriptive qualitative with ethnobotanical approach. The initial interview was done to explore the daily basis of the community. Through this interview, we selected informants purposively (Martin, 1995). Based on this interview, we chose significant figures as prospective informants such as traditional leader, kuncen (forest caretaker), and paraji (midwife and health practitioner as well). We were also involved in activities done by some informants, such as working at garden and forest, attending rituals and observing the midwife on duty but we did not participate in all of the daily activities of the informant.

An open-ended interview with those three significant respondents was done during the initial data collection process. We started interactions with these respondents by first explaining the aims and objectives of the research to solicit their consent and cooperation before any ethnobotanical data were gathered. During these interviews, we emphasized the immense value which each significant figure’s contribution could make to the compilation of a record of traditional knowledge of medicinal plants in this community. Data of initial prospective informant candidates were collected through the recommendation of these figures. Next candidates were obtained through snowball sampling methods. The criteria recognized to recruit further informants were: 1) people according to the previous informant had knowledge and experience in using medicinal plants, 2) patients of paraji who had used medicinal plants and practiced traditional treatments, and 3) farmers who planted plants included in the criteria of medicinal plants. Based on these criteria, the informants were grouped into two community groups: 1) traditional and important figures in the region such as traditional leader, forest caretaker, midwife, health practitioner and elders, 2) general figures of all ages.

With the help of an interpreter, all interviews and discussions were conducted in Sunda halus, the local language. Ethnobotanical data were collected through two stages. First stage was an open interview. We collected the data of diseases or illnesses commonly suffered by the community. Furthermore, concerning each type of disease or illness, we asked what plant or plant mixture they use to cure them, which part of the plant they use, and how they process it/them into medicines. The data on this stage were gathered from 16 people altogether which included customary figures as kuncen and respected elders, healer figures as shaman and midwife, and general residents of all ages. The second stage was the reverse of the first stage. At this stage, all informants were firstly asked to mention all plants used for medicinal purpose. On each type of plant, we then asked the use of plants related to medicinal purposes. The total informant in this stage was 10 people of the same array.

Plant Collection

Photograph and specimen of some unrecognized plants in the field were collected in situ for proper identification. The specimens were collected from both natural vegetation and garden such forest, home gardens and farm with the help of key informants. Data on each plant were recorded by using the data capture form.

Plant Identification

Some of the medicinal plants were identified in the field and the remaining ones were identified through literature review. Collected specimens were identified in Herbarium Bandungense, School of Life Science and Technology, Institut Teknologi Bandung. The identity and nomenclature of each plant species were determined following Backer and van den Brink (1965), Nielsen (1992), Prawira (1976), Ochse and van den Brink (1931), and Ogata et al. (1995).
Data Analysis

The data of interview with informants were analyzed by medical anthropology approach while medicinal plant data were analyzed through medicinal ethnobotany approach (Martin, 1995). Both data were shown descriptively and quantitatively in tables and graphs. Medical anthropology aspect covered the cultural aspect related to the classification of diseases and illnesses based on the traditional community (disease concept), type of curing methods, the role of the traditional healer on the community, and how the knowledge was transferred through generations. Medicinal ethnobotany covered the identification of medicinal plants known and used by the people, their local names, part of the plant used, medicinal properties based on their experience, and the location where they were obtained.

![Research location: West Java Province (a), Garut Regency (b), and Location of Kampung Dukuh (c)](image)

Figure 1. Research location: West Java Province (a), Garut Regency (b), and Location of Kampung Dukuh (c)

RESULT

Medicinal plant

The results showed that people of Kampung Dukuh recognized 131 species of medicinal plants from 51 families. Families with the most number of species are Zingiberaceae (14 species), Poaceae (8 species), Asteraceae (7 species), Fabaceae (6 species), and Solanaceae (6 species). Table 1 shows various plant species used by people of Kampung Dukuh as medicine.

| Family           | Scientific name | Vernacular name | Ailment treated | Plant part used and processing                  |
|------------------|-----------------|-----------------|-----------------|------------------------------------------------|
| Amaranthaceae    | Iresine herbstii Hook.F. | Beungbeureuman  | Nausea          | Water decoction of leaves                     |
| Amaryllidae      | Crinum asiaticum L.       | Bakung          | Boil            | Root is shredded, taped to boils              |
|                   |                  |                 | Heatiness       | Squeezed leaves smeared on the back           |
|                   |                  |                 |                 | Crushed bulbs are rubbed on stomach and head |
| Alium cepa L.    |                  | Bawang beureum  | Common cold, fever, flu |                                                 |

Table 1. List of medicinal plant species known by people of Kampung Dukuh
| Family          | Scientific name                        | Vernacular name       | Ailment                     | Plant part used and processing                           |
|-----------------|----------------------------------------|-----------------------|-----------------------------|----------------------------------------------------------|
|                 | **Allium sativum** L.                  | Bawang bodas          | Hypertension                | Crushed bulbs are mixed with sugar                       |
|                 |                                        |                       |                             | Crushed bulbs are rubbed into the skin                   |
|                 |                                        |                       |                             | Crushed bulb is eaten directly                           |
|                 |                                        |                       |                             | Crushed bulb is mixed with sugar                         |
|                 |                                        |                       |                             | Bulbs are chewed, placed on cavities                      |
|                 |                                        |                       |                             |                                                          |
| Anacardiaceae   | **Mangifera indica** L.                | Mangga                | Hypertension                | Crushed bulb is eaten directly                           |
| Annonaceae      | **Annona muricata** L.                 | Nangka walanda        | Running cold in children    | Pounded leaves are smeared on the head                    |
|                 |                                        |                       | Fever, body ache            |                                                          |
|                 |                                        |                       | Vertigo                     |                                                          |
| Apiaceae        | **Centella asiatica** (L.) Urb.        | Antanan               | Hypertension, body ache     | Water decoction of leaves                                |
|                 |                                        |                       | Problem in respiratory     |                                                          |
|                 |                                        |                       | system                      |                                                          |
|                 | **Apium graveolens** L.                | Seledri               | Hypertension                | Water decoction of leaves                                |
| Apocynaceae     | **Daucus carota** L.                   | Wortel                | Sore eyes                   | Root is eaten directly                                   |
|                 | **Allamanda cathartica** L.            | Lame areuy            | Tonic, diarrhea, ulcer      | Water decoction of stem                                  |
|                 |                                        |                       | Post partum care            | Powder of dried stem is served as herbal drink           |
|                 | **Alstonia scholaris** (L.) R.Br.      | Lame hideung          | Ulcer, body sore            | Water decoction of stem                                  |
|                 |                                        |                       | Post partum care            | Powder of dried stem is served as herbal drink           |
| Araceae         | **Colocasia esculenta** (L.) Schott.   | Talas bolang          | Cough                       | The sap from cut stem is collected, left overnight       |
|                 |                                        |                       |                             | Squeezed leaves are smeared on bruise                     |
|                 | **Xanthosoma ningrum** (Vell.) Masf.   | Taleus hideung        | Bruised skin                | The sap from cut stem is collected, left overnight       |
|                 | **Colocasia gigantea** (BI.) Hook.f.   | Taleus kajar-kajar     | Cough                       |                                                          |
| Areaceae        | **Areca catechu** L.                   | Jambe                 | Dental health, throat sore  | Root is chewed up                                         |
|                 |                                        |                       | Ulcer                       | Hot water is poured into sliced nut                      |
|                 |                                        |                       |                             | Nut is eaten, water decoction of root         |
| Family                          | Scientific name                          | Vernacular name | Ailment treated | Plant part used and processing                                   |
|--------------------------------|------------------------------------------|-----------------|-----------------|------------------------------------------------------------------|
| Asteraceae                     | Ageratum conyzoides L. Babadotan         | Kelapa hejo     | Post partum care | Powder of dried root is served as herbal drink                    |
|                                |                                          |                 | Skin ulcer      | The rind is burned, pounded, added with vegetable oil, smeared on skin |
|                                |                                          |                 | Food poisoning  | Stem sap is used for drinking                                      |
|                                |                                          |                 | Ulcer           | Water decoction of root                                            |
|                                |                                          |                 | Post partum care | Powder of dried root is served as herbal drink                    |
|                                |                                          |                 | Skin ulcer, scab, burns | Oil is applied on stomach                                          |
|                                |                                          |                 | Fever and common cold | Oil is applied on whole body                                      |
|                                |                                          |                 | Eczema, skin ulcer | Oil is applied on skin                                             |
|                                |                                          |                 | Diarrhea        | The embryo is eaten directly                                       |
|                                |                                          |                 | Food poisoning, sprue, urinary retention | Liquid endosperm is used for drinking |
|                                |                                          |                 | Hair health     | Liquid endosperm is smeared on hair                                |
|                                |                                          |                 | Post partum care | Powder of dried root is served as herbal drink                    |
|                                |                                          |                 | Body ache, appetite booster, dizziness | Water decoction of leaves                                           |
|                                |                                          |                 | Wound           | Squeezed leaves smeared on wound                                  |
|                                |                                          |                 | Fever           | The extract from leaves is used for drinking                       |
|                                |                                          |                 | Problem in respiratory system | Hot water is poured over pounded leaves and used for drinking      |
| Asteraceae                     | Crassocephalum crepidioides (Benth.) S.Moore. | Jalantir       | Headache        | Water decoction of leaves                                           |
|                                | Senecio sonchifolius Moench.             | Jongek          | Eye irritation   | Extract of leaves is dropped into the eye                          |
|                                | Gynura sarmentosa (Bl.) D.C.             | Kalingsir       | Urinary retention | Extract of leaves is dropped into ear                               |
|                                |                                          |                 |                 | Water decoction of leaves                                           |
| Family                  | Scientific name                        | Vernacular name | Ailment treated          | Plant part used and processing                                      |
|-------------------------|----------------------------------------|-----------------|--------------------------|---------------------------------------------------------------------|
| Eupatorium odoratum     | Ki andih                               | Nose bleeding   | Squeezed leaves are put into nostril |
|                         |                                        | Wound           | Squeezed leaves are smeared on wound |
|                         |                                        | Tonic           | Water decoction of leaves  |
| Blumea balsamifera      | Sembung                                | Appetite booster| Dried leaves are boile and served as tea |
| (L.) D.C.               |                                        | Body ache, post partum care, tonic | Water decoction of leaves  |
| Bignoniaceae            | Kalujaran                              | Cough           | The sap from cut stem is collected and used for drinking |
| Dolichandrone spathceca |                                        | Sore eyes       | Extract of leaves is dropped into the eye |
| (L.f.) K. Schum.        |                                        | Post partum care| Boiled leaves are eaten  |
| Bombacaceae             | Sembung                                | Pre partum care | The extract from leaves is used for drinking |
| Ceiba petandra (L.)     | Randu                                  | Body ache       | Water decoction of leaves  |
| Gaertn.                 |                                        | Toothache       | Flower is chewed, placed on cavities |
| Brassicaceae            | Sawi hayam                             | Headache        | Water decoction of fruit  |
| Rorippa indica (L.)     |                                        | Skincare        | Powder of dried rind i used as mask |
| Riern.                  |                                        | Dizziness       | Hot water is poured on fruit, added with sugar and used for drinking |
| Burmanniaceae           | Anggrek panili                         | Body ache       | Water decoction of leaves  |
| Vanilla planifolia      |                                        | Post partum care| Powder of dried root i served as herbal drink |
| Andrews.                |                                        | Insect bites    | The sap of stem and leaves are dropped to the wound |
| Caesalpiniaeae          | Asam                                   | Hypotension, breast milk booster | Water decoction of leaves  |
| Tamarindus indica L.    |                                        | Insect bites    | Leaves sap is dropped into cavity |
| Senna alata (L.) Roxb.  | Ki manila                              | Body ache, tonic| Ponded seed is smeared on head |
| Caricaceae              | Carica papaya L.                       | Toothache       | Powder of dried root i served as herbal drink |
|                         | Gedang                                 | Headache        | Fruit is eaten directly   |
|                         |                                        | Post partum care|                                                                         |
|                         |                                        | Constipation, sprue|                                                                         |
| Family          | Scientific name                                      | Vernacular name | Ailment treated           | Plant part used and processing                                                                 |
|----------------|------------------------------------------------------|-----------------|---------------------------|------------------------------------------------------------------------------------------------|
| Clusiaceae     | *Garcinia Mangostana* L.                            | Manggu          | Skin ulcer                | Fruit is burned, crushed, added with coconut oil, smeared on skin                                |
| Convolvulaceae | *Ipomoea aquatica* Forsk.                           | Kangkung        | Hypotension, insomnia     | Boiled leaves are eaten                                                                        |
| Cucurbithaceae | *Cucumis sativus* L.                                 | Bonteng         | Heatiness, hypertension,  | Fruit is eaten directly                                                                         |
|                |                                                      |                 | headache                  |                                                                                                 |
|                | *Lagenaria leucantha* (Duch.) Poir                   | Kukuk           | Erectile dysfunction,     | Pounded leaves are smeared on penis                                                              |
|                |                                                      |                 | Ulcer                     |                                                                                                 |
|                | *Momordica charantia* L.                             | Paria           | Itchy skin                | Pounded leaves are smeared on skin                                                               |
|                | *Cucurbita moschata* (Duch.) Poir.                   | Waluh ageung    | Ulcer                     | Boiled fruit is eaten                                                                            |
| Euphorbiaceae  | *Sechium edule* SW.                                  | Waluh siam      | Hypotension               | Fruit is eaten directly                                                                          |
|                | *Jatropha curcas* L.                                 | Jarak           | Toothache                 | Leaves sap is dropped into cavity                                                               |
|                | *Ricinus communis* L.                                | Kaliki          | Post partum care          | Leaves as warm charcoal wrapper to sit on as vagina therapy                                      |
|                |                                                      |                 |                           | Heated up stem is put in the ear canal while blown                                              |
|                | *Sauropus androgynus* (L.) Merr.                     | Katuk           | Hypotension, anemia,      | Boiled leaves are eaten                                                                           |
|                |                                                      |                 | breast milk booster,      |                                                                                                 |
|                |                                                      |                 | sore eyes                 |                                                                                                 |
|                | *Euphorbia hirta* L.                                 | Nanangkaan      | Post partum care - over   | Water decoction of leaves                                                                        |
|                |                                                      |                 | bleeding                  |                                                                                                 |
|                | *Manihot esculanta* Crantz.                          | Sampeu'         | Hypotension, anemia,      | Boiled leaves are eaten                                                                           |
|                |                                                      |                 | Wound                     | Squeezed leaves are put into wound                                                               |
|                |                                                      |                 |                           | The tuber is eaten directly                                                                      |
|                |                                                      |                 |                           | Starch is boiled, mixed with water and used for drinking                                         |
| Fabaceae       | *Gliricidia sepium* (Jacq.) Kunth ex Walp            | Angrum          | Skin disease              | Pounded leaves are smeared on the skin                                                            |
|                | *Erythrina subumbrans* (Hassk.) Merr.                | Dadap           | Cough                     | Grinded young leaves are applied to the neck as compress, the extract of leaves is used for drinking |
|                |                                                      |                 |                           | The extract of leaves is used for drinking                                                        |
|                |                                                      |                 |                           |                                                                                                 |

**Notes:**
- *Clusiaceae* is the family of the Mangosteen plant, which is known for its antiseptic properties.
- *Convolvulaceae* is the family of the morning glory plant, which is often used to treat hypotension.
- *Cucurbithaceae* is the family of the cucumber plant, which is used in traditional medicine for various ailments.
- *Euphorbiaceae* is the family that includes the jatropha plant, which is used for toothache treatment.
- *Fabaceae* is the family of legumes, which includes many medicinal plants used in traditional medicine.

**Ailments Treated:**
- Skin ulcer
- Hypotension
- Hypertension, headache
- Erectile dysfunction
- Ulcer
- Itchy skin
- Cough
- Post partum care
- Skin disease
- Intestinal worm
- Hypotension, anemia, breast milk booster, sore eyes
- Intestinal worm
- Heatiness
- Intestinal worm

**Processing:**
- Fruit is burned, crushed, added with coconut oil, smeared on skin
- Boiled leaves are eaten
- Fruit is eaten directly
- Pounded leaves are smeared on penis
- Boiled leaves are eaten
- Fruit is eaten directly
- Leaves sap is dropped into cavity
- Leaves as warm charcoal wrapper to sit on as vagina therapy
- Boiled leaves are eaten
- Water decoction of leaves
- Squeezed leaves are put into wound
- The tuber is eaten directly
- Starch is boiled, mixed with water and used for drinking
- Pounded leaves are smeared on the skin
- Grinded young leaves are applied to the neck as compress, the extract of leaves is used for drinking
- The extract of leaves is used for drinking
| Family                        | Scientific name                        | Vernacular name          | Ailment treated                                                                 | Plant part used and processing |
|------------------------------|----------------------------------------|--------------------------|---------------------------------------------------------------------------------|--------------------------------|
| **Iridaceae**                | *Vigna radiata* (L.) Wilczek.           | Kacang hejo              | Fever in children, body ache                                                     | Squeezed leaves are smeared on body |
|                              | *Desmodium triquetrum* D.C.            | Ki congcorang            | Near-sightedness, Heatiness, headache, back pain, hoarseness, constipation       | Stem sap is dropped into the eyes |
|                              | *Abrus precatorius* L.                 | Saga                     | Sprue                                                                            | Water decoction of leaves        |
| **Lamiaceae**                | *Arachis hypogaea* L. Suuk              | Saga                     | Post partum care, Fever                                                          | Squeezed leaves are smeared on stomach |
|                              | *Belamcanda chinensis* (L.) D.C.        | Suliga                   | Fever                                                                            | Seeds are cooked as porridge     |
|                              | *Coleus scutelloroides* (L.) Bth.      | Jawer kotok             | Tonic, back pain, ulcer                                                         | Water decoction of leaves        |
|                              | *Ocimum basilicum* L.                  | Kemangi                  | Eye irritation                                                                   | Extract of leaves is dropped into the eye |
|                              | *Orthosiphon aristatus* (BI.) Miq      | Kumis kucing             | Boil                                                                             | Pounded leaves are taped to boils |
|                              | *Persea americana* Mill.               | Apuket                   | Body ache                                                                        | Pounded nut is eaten             |
| **Loranthaceae**             | *Scurrula* sp.                         | Mangandeuh jengkol       | Constipation, Rib pain                                                           | Pounded fruit is smeared on rib   |
| **Malvaceae**                | *Gossypium* sp.                        | Kapas                    | Sore eyes                                                                        | Squeezed leaves are used as eye mask |
|                              | *Urena lobata* L.                      | Pungpurutan              | Diarrhea, body ache, back pain, ulcer, tonic                                     | Water decoction of leaves        |
|                              | *Sida rhombifolia* L.                  | Sadagori                 | Urinary retention                                                               | Water decoction of leaves        |
|                              |                                        |                          | Body ache                                                                        | Water decoction of leaves and flower |
| **Marantaceae**              | *Maranta arundinacea* L.               | Sagu                     | Cancer                                                                           | Dried leaves are served as herbal drink |
| **Melastomataceae**          | *Clidemia hirta* (L.) D.Don.           | Harendong                | Cold urticaria                                                                   | The raw fiber is warmed up and rubbed on skin |
|                              |                                        |                          | Wound                                                                            | Squeezed leaves are smeared into wound |
|                              |                                        |                          | Rheumatism                                                                       | Water decoction of root          |
|                              |                                        |                          | Meal for recovery period                                                         | Boiled root is eaten             |
|                              |                                        |                          | Post partum care                                                                 | Powder of dried leaf is served as herbal |
| Family       | Scientific name               | Vernacular name | Ailment treated                          | Plant part used and processing                                      |
|--------------|-------------------------------|-----------------|------------------------------------------|---------------------------------------------------------------------|
| **Meliaceae**| *Dysoxylum decandrum* Merr.  | Ki tahi         | Wound                                   | Drink squeeze leaves are smeared on wound                            |
|              | *Swietenia mahagoni* (L.) Jacq.| Mahoni          | Diabetic wound                          | Pounded leaves are smeared on wound                                 |
|              |                               |                 | Diabetic wound                          |                                                                     |
|              |                               |                 | Malaria, body ache                      |                                                                     |
|              |                               |                 |                                          |                                                                     |
| **Menispermaceae** | *Cyclea barbata* (Wall.) Miers. | Cingcau          | Cold                                    | The sap of squeezed leaves is clotted                              |
|              | *Tinospora tuberculata* Beumee.| Patrawalik      | Body ache, late periods, tonic          | Water decoction of stem                                             |
| **Mimosaceae** | *Parkia speciosa* Hassk.      | Peuteuy ageung  | Intestinal worm                         | Fruit is eaten directly                                             |
|              |                               |                 | Skin ulcer                              |                                                                     |
|              | *Leucaena glauca* Benth.      | Peuteuy cina    | Intestinal worm                         |                                                                     |
|              |                               |                 |                                          |                                                                     |
| **Moraceae**  | *Artocarpus heterophyllus* Lmk.| Nangka          | Body ache                               | Water decoction of leaves                                          |
|              | *Artocarpus altidis* (Park.) Fosrberg. | Sukun          | Cholesterol                             | Leaves are dried, brewed and used for drinking                     |
|              |                               |                 |                                          |                                                                     |
|              | *Artocarpus elastica* Reiw.  | Teureup         | Post partum care                        | The bark is wrapped around the stomach                              |
| **Moringaceae** | *Moringa oleifera* Lamk.     | Kelor           | Tonic                                   | Boiled leaves are eaten                                             |
| **Musaceae**  | *Musa acuminata* Colla var.A AA Group | Cau beureum       | Pre partum care                         | Leaves as warm charcoal wrapper to put on belly                      |
|              |                               |                 |                                          |                                                                     |
|              | *Musa acuminata* Colla var. Cavendish | Cau ambon      | Wound                                   | The sap from all part of plant can be applied on wound              |
|              |                               |                 |                                          |                                                                     |
|              | *Musa eumusa* var. AAB        | Cau kapas       | Earache                                 | The fruit is burned up, the steam is blown to ear                   |
| **Myrtaceae** | *Eugenia aromatica* O.K.     | Cengkeh         | Toothache                               | The seed is chewed and placed on cavity                              |
|              |                               |                 | Post partum care                        | Powder of dried fruit is served as herbal drink                     |
|              |                               |                 |                                          |                                                                     |
|              |                               |                 | Nose bleeding                           | Squeezed leaves are put into nostril                                |
| Family            | Scientific name | Vernacular name | Ailment treated                          | Plant part used and processing |
|-------------------|-----------------|-----------------|------------------------------------------|---------------------------------|
| **Psidium guajava L.** | Jambu batu      | Diarrhea, headache, stomachache          | Water decoction of leaves           |
| **Syzigium aqueum** | Jambu cai       | Fever            | Water decoction of leaves                |
| (Burm.f.) Alst.   |                 |                 |                                          |
| **Eugenia polyantha** | Salam          | Hypertension     | Water decoction of leaves                |
| Wight.            |                 |                 |                                          |
| **Jasminum sambac (L.)** | Melati         | Circumcision care | Part of bathing ritual                  |
| Ait.              |                 |                 |                                          |
| **Averrhoa carambola L.** | Balingbing  | Hypertension     | Fruit is eaten directly                 |
| **Andrographis Paniculata Ness** | Sambilata | Appetite booster | Water decoction of leaves               |
| **Malaviscus arboreus** | Wera           | Typhoid fever    | Pounded leaves are smeared on body       |
| Cav.              |                 |                 |                                          |
| **Sesamum orientale L.** | Wijen          | Wound            | Oil from seed is smeared on wound        |
| **Oleaceae**      |                 |                 |                                          |
| **Jasminum sambac (L.)** | Melati         | Circumcision care | Part of bathing ritual                  |
| **Averrhoa carambola L.** | Balingbing  | Hypertension     | Fruit is eaten directly                 |
| **Andrographis Paniculata Ness** | Sambilata | Appetite booster | Water decoction of leaves               |
| **Malaviscus arboreus** | Wera           | Typhoid fever    | Pounded leaves are smeared on body       |
| Cav.              |                 |                 |                                          |
| **Sesamum orientale L.** | Wijen          | Wound            | Oil from seed is smeared on wound        |
| **Piperaceae**    |                 |                 |                                          |
| **Piper sarmentosum** | Karuk          | Asthma, asphyxiate | Pounded leaves are smeared on chest     |
| Roxb. Ex Hunter  |                 | Cough            |                                          |
| **Piper aduncum L.** | Ki seureuh     | Post partum care | Squeezed leaves are put into nostril     |
| **Piper ningrum L.** | Pedes          | Toothache        | Crushed seeds are put into cavity       |
| **Piper betle L.** | Seureuh        | Tonsillitis      | Water decoction of leaves               |
| **Pedaliaceae**   |                 |                 |                                          |
| **Sesamum orientale L.** | Wijen          | Wound            | Oil from seed is smeared on wound        |
| **Piperaceae**    |                 |                 |                                          |
| **Piper aduncum L.** | Ki seureuh     | Post partum care | Squeezed leaves are put into nostril     |
| **Piper ningrum L.** | Pedes          | Toothache        | Crushed seeds are put into cavity       |
| **Piper betle L.** | Seureuh        | Tonsillitis      | Water decoction of leaves               |
| **Poaceae**       |                 |                 |                                          |
| **Dendrocalamus asper** | Awi bitung    | Cough            | The sap from cut bamboo shoot is collected, served as wine |
| (Schult.f.) Backer ex Heyne |            |                 |                                          |
| **Gigantochloa apus** | Awi tali        | Cough            | The sap from cut bamboo shoot is steamed, put into the cavity |
| Kurz              |                 |                 |                                          |
| Family          | Scientific name               | Vernacular name | Ailment treated                                      | Plant part used and processing                                                                 |
|-----------------|-------------------------------|-----------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| **Polygalaceae** | Polygala paniculata           | Jukut pepeo     | Hernia                                               | All part of plant is steamed, pounded, added with salt, taped on stomach                        |
| **Punicaceae**  | Punica granatum L.            | Delima          | Hypertension                                         | Water decoction of leaves                                                                       |
| **Schizostachyum blumei** | Ness.                       | Awi tamiang     | Sharpen the vision                                   | The sap of bamboo shoot is dropped into eyes                                                    |
| **Eleusine indica** | Gaertn                     | Carulang        | Post partum care                                     | Steamed leaves are smeared over the stomach                                                     |
| **Imperata cylindrica** | (Ness) C.E.Hubb.        | Eurih           | Diabetes, ulcer, body ache, tonic                    | Water decoction of root                                                                         |
| **Oryza sativa L. var. formaglotinosa** |                         | Ketan bodas     | Hemorrhoids                                          | Squeezed leaves are rubbed on waist                                                            |
| **Oryza sativa L. var. formaglutinosas** |                           | Ketan hideung   | Bleeding                                             | The seeds are brewed in hot water, filtered and used for drinking                               |
| **Serycocalyx crispus** | (L.)Bremek                  | Pecah beling    | Urinary retention, body ache                         | Chewed seed is applied to bruise                                                               |
| **Cymbopogon citratus** | (DC.)Stapf.                | Sereh           | Digestive health                                     | Seed paste is used as mask                                                                      |
| **Polygalaceae** | Polygala paniculata           | Jukut pepeo     | Hernia                                               | Rice soaked water is used for drinking                                                          |
| **Punicaceae**  | Punica granatum L.            | Delima          | Hypertension                                         | Water decoction of leaves                                                                       |
| Family       | Scientific name                                | Vernacular name    | Ailment treated                                      | Plant part used and processing                                      |
|-------------|-----------------------------------------------|--------------------|-----------------------------------------------------|---------------------------------------------------------------------|
| Rosaceae    | *Rosa × centifolia* L.                        | Ros                | Female contraception                                 | Water decoction of flower                                          |
|             |                                               |                    | Diabetes, tonic, ulcer                                | Fruit is shredded to get the extract                                |
|             |                                               |                    | Vertigo                                             | Water decoction of leaves is applied to body                        |
|             | *Uncaria gambir* (Hunter.) Roxb.              | Gambir             | Toothache                                           | Squeezed leaves are rubbed on teeth                                 |
|             | *Gardenia jasminoides* Ellis.                 | Kaca piring        | Fever                                               | The sap of squeezed leaves is collected, filtered and clotted       |
|             |                                               |                    |                                                     | Powder of dried leaves is served as herbal drink                    |
|             | *Plectonia horrida Scum.*                     | Kaliyage           | Post partum care                                    |                                                                     |
|             | *Musaenda frondosa* L.                        | Kingkilaban        | Eye irritation                                       | Leaves sap is dropped into the eyes                                 |
|             |                                               |                    |                                                     | Powder of dried leaves is served as herbal drink                    |
| Rutaceae    | *Citrus maxima* Merr.                         | Jeruk bali         | Fever                                               | Water decoction of fruit                                           |
|             | *Citrus sinensis* (L.) Osbeck                 | Jeruk manis        | Hypertension                                        | Fruit is eaten directly                                             |
|             | *Citrus aurantifolia* (Christm.&Panz.) Swingle | Jeruk nips         | Cough, fever                                        | The juice is mixed with soy sauce and warm water                    |
| Sapindaceae | *Cardiospermum halicacabum* L.                | Paria hutan        | Skin ulcer                                          | Squeezed leaves are smeared on skin                                 |
| Solanaceae  | *Nicotiana tabacum* L.                        | Bako’              | Stomachache                                         | Leaves are brewed in hot water, filtered, & used for drinking       |
|             | *Physalis angulata* L.                        | Cecendet           | Fever, body ache, menstruation cramp, post partum care, urinary retention, tonic | Water decoction of leaves                                           |
|             |                                               |                    | Wound                                               | Pounded leaves are applied to the wound                             |
|             | *Capsicum frutescens* L.                      | Cengek             | Cut skin                                            | Pounded fruit is applied to the wound                               |
|             |                                               |                    | Post partum care, headache                          | Served as food seasoning                                             |
|             | *Solanum tuberosum* (L.)                      | Kentang            | Digestive health                                    | Boiled tuber                                                       |
|             | *Solanum melongena* L.                        | Terong peuheur     | Erectile dysfunction                                | Pounded seed is smeared on penis                                   |
|             | *Cypomandra betacea*                          | Terong walanda     | Toothache                                           | Burned in a                                                        |
| Family          | Scientific name                  | Vernacular name | Ailment treated                  | Plant part used and processing                                                                 |
|-----------------|----------------------------------|-----------------|----------------------------------|------------------------------------------------------------------------------------------------|
| Sterculiaceae   | Melochia umbellata O.Stapf.       | Bintinu         | Fracture                         | The bark is rubbed on teeth                                                                    |
| Theaseae        | Thea sinensis L.                  | Teh             | Diarrhea                         | Water decoction of leaves                                                                      |
| Thymelaeeae     | Phaleria Macrocarpa (Scheff.)Boerl.| Mahkota dewa   | Tonic                            | Sliced fruit is dried, served as tea                                                            |
| Urticaceae      | Villebrunea rubescens (Bl.) BI.   | Nangsi          | Digestive health                 | Leaves are eaten directly                                                                       |
|                 | Pilea melastomoides (Poir.) BI.  | Poh pohan       | Rheumatism                       | Water decoction of leaves                                                                      |
| Verbenaceae     | Stachytarpheta indica (L.) Vahl.  | Jarong          | Post partum care                 | Powder of dried root is served as herbal drink                                                   |
|                 |                                  |                 | Swollen body                     | Water decoction of all part of plant                                                            |
|                 | Kaempferia galanga L.             | Cikur           | Bump, boil, luxation, bruise,    | Pounded rhizome is rubbed on affected part                                                       |
|                 |                                  |                 | headache, stomachache, Fever     | Water decoction of rhizome                                                                      |
|                 |                                  |                 |                                  | Digestive health                                                                              |
|                 |                                  |                 | Post partum care                 | Powder of dried rhizome is mixed with sugar                                                     |
|                 |                                  |                 |                                  | Powder of dried rhizome is served as herbal drink                                               |
|                 |                                  |                 | Tonic                            | Water decoction of rhizome                                                                      |
|                 | Nicolaia speciosa (Bl.) Horan     | Honje           | Headache                         | Water decoction of stem                                                                         |
|                 | Zingiber officinale Roxb.         | Jahe            | Post partum care                 | Pounded rhizome is mixed with warm charcoal wrapped with banana leaves to sit on                 |
|                 |                                  |                 |                                  | Pounded rhizome is smeared on affected part                                                      |
|                 |                                  |                 | Rheumatism                       | Shredded rhizome is mixed with coconut oil, smeared on the body                                  |
|                 |                                  |                 | Common cold                      | Extract of shredded rhizome is used for drinking                                                |
|                 |                                  |                 | Cough                            | Water decoction of fruit                                                                        |
|                 | Amomum cardamomum Wild.           | Kapulaga        | Asphyxiate                       | Water decoction of fruit                                                                        |
|                 | Curcuma xanthorrhiza              | Koneng ageung   | Asthma,                          | Water decoction of                                                                             |
| Family                  | Scientific name                   | Vernacular name | Ailment treated                                                                 | Plant part used and processing                        |
|------------------------|-----------------------------------|-----------------|---------------------------------------------------------------------------------|-------------------------------------------------------|
| Roxb.                  |                                   |                 | diarrhea, body ache, ulcer, post partum care, tonic                             | rhizome                                               |
| *Curcuma zedoaria*     | (Berg.) Roscoe                    | Koneng bodas    | Ulcer, appetite booster                                                          | The powder of dried rhizome is served as drink        |
|                        |                                   |                 |                                                                                  |                                                       |
| *Curcuma aeruginosa*   | Roxb.                             | Koneng hideung  | Diarrhea, ulcer, dizziness, body ache, tonic                                     | Water decoction of rhizome                            |
|                        |                                   |                 |                                                                                  |                                                       |
| *Curcuma domestica*    | Vahl.                             | Koneng sayur    | Diarrhea, appetite booster, ulcer                                                | Extract of shredded rhizome is used for drinking      |
|                        |                                   |                 |                                                                                  |                                                       |
| *Languas galanga*      | (L.) Stuntz.                      | Laja            | Digestive health stomachache                                                      | Pounded rhizome is smeared on skin                    |
|                        |                                   |                 |                                                                                  |                                                       |
| *Zingiber zerumbet*    | (L.) J.E.Smith                    | Lampuyang       | Post partum care, tonic                                                          | Water decoction of rhizome                            |
|                        |                                   |                 |                                                                                  |                                                       |
| *Impatiens balsamina*  | L.                                | Pacar putih     | Skin ulcer                                                                       | Swollen feet                                          |
|                        |                                   |                 |                                                                                  |                                                       |
| *Costus speciosus*     | (Kuen.) J.E.Smith                 | Pacing          | Female contraception                                                             | Extract of stem is used for drinking                  |
| *Zingiber purpureum*   | Roxb.                             | Panglay          | Hypertension                                                                     | Pounded rhizome is smeared on chest                    |
|                        |                                   |                 | Asthma, asphyxiate, flu in children                                              |                                                       |
|                        |                                   |                 | Baby care after birth                                                            |                                                       |
|                        |                                   |                 | Post partum care                                                                 |                                                       |
|                        |                                   |                 |                                                                                  |                                                       |
Illnesses suffered commonly by the people of Kampung Dukuh were cough and fever. Nevertheless, they also recognized medicinal plants to cure other complicated illnesses such as diabetes, hypertension, cardiac complication, asthmatic and intoxication. Figure 2 shows the number of species used in treating disease usually suffered by people of Kampung Dukuh. The highest total number of plant used was on pre and postpartum care. The traditional method applied by people of Kampung Dukuh on pre and postpartum care is specifically discussed in the next subchapter.

![Figure 2](image_url)

**Figure 2.** Number of species used as medicines of each group of health conditions

### Plant Part Used and Mode of Preparation

Plant parts used by people of Kampung Dukuh as medicines were root, stem, seed, fruit, flower, leaf, rhizome, and tuber (Figure 3). Leaf was part of plant mostly used by the community. Most of the plant-based medicines known only consisted of one part of a plant species, for instance, *Ageratum conyzoides* L. (leaf), *Physalis angulata* L. (leaf), *Kaempferia galanga* L. (rhizome), *Oryza sativa* L. (var.) formaglutinosa (seed) and *Alstonia scholaris* (L.) R.Br. (stem). It was documented that the community also used more than one plant part of some species. Root and stem of *Imperata cylindrica* were used in curing diabetes, dyspepsia, muscle aches, also as tonic. Almost every part of *Carica papaya* L. was recognized as medicines, starting from the roots, leaves, sap of leaves, stems, fruit, flower and even seeds to treat ailments such as hypotension, malaria, postpartum care, body aches, toothaches, digestive complications, and headaches. Leaf extract was used for drinking by processed it into breastmilk supply booster and tonic. The stem, root, and leaf of *Cymbopogon citratus* (DC.) Stapf were used to treat digestive complication, rheumatic disease, pre and postpartum care and vertigo.

| Family | Scientific name | Vernacular name | ailment treated | Plant part used and processing |
|--------|-----------------|-----------------|----------------|-------------------------------|
|        | *Boesenbergia pandurata* (Roxb.) Schlecht. | Temu kunci | Fever in baby | Pounded leaves are smeared on body |
|        |                |                 | Digestive health | Cleaned rhizome is eaten raw |
|        |                |                 | Ulcer, hypertension | Extract from shredded rhizome |

| Number of plants | Cough | Hypertension | Pre and post partum care | Wound and bruise | Digestive problem | Muscle aches | Toothaches | Headaches | Skin diseases | Sore eyes | Fever | Sore diarrhoea | Tonic |
|-----------------|-------|--------------|--------------------------|-----------------|------------------|--------------|-------------|-----------|--------------|----------|--------|----------------|-------|
| 0               | 11    | 12           | 16                       | 16              | 31               | 26           | 12          | 11        | 16           | 10       | 9      | 18             |       |
| 5               | 15    | 15           | 15                       | 15              | 25               | 25           | 25          | 25        | 25           | 25       | 25     | 25             |       |
| 10              | 20    | 20           | 20                       | 20              | 40               | 40           | 40          | 40        | 40           | 40       | 40     | 40             |       |
| 15              | 25    | 25           | 25                       | 25              | 45               | 45           | 45          | 45        | 45           | 45       | 45     | 45             |       |

| Family | Scientific name | Vernacular name | ailment treated | Plant part used and processing |
|--------|-----------------|-----------------|----------------|-------------------------------|
|        | *Boesenbergia pandurata* (Roxb.) Schlecht. | Temu kunci | Fever in baby | Pounded leaves are smeared on body |
|        |                |                 | Digestive health | Cleaned rhizome is eaten raw |
|        |                |                 | Ulcer, hypertension | Extract from shredded rhizome |

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**Figure 3.** Percentages of plant part used

The community classified two types of treatment; namely external and internal treatment. Ailments treated externally were like skin pain, toothache, earache, and sore eyes. Internal treatment was the type of treatment applied by eating or drinking single or mixture of the medicinal herbs orally. The medicine could be in the forms of extract, paste or raw herbs. Most of the external ailments were treated with a single plant composition only. Most part used in curing wound and skin disease was leaf and taken from one type of plant. For example, *Dysoxylum decandrum* Merr. was used as medicine for the diabetic wound. Some people in Kampung Dukuh were even found to cultivate this species in their garden and forest edge. The preparation of this treatment was performed by crushing the ingredients. Firstly, the leaves were washed and then crushed into small pieces. Crushed paste smeared directly onto the wound thickly. The wound was covered and tied up with a bandage. The coat was changed every day until the wound dried. Resin and sap of plant were also used for external treatment, particularly for ears and eye ailment.

Modes of preparation of medicinal plants for internal ailment known were generally done by boiling the plant to get the extract or by scrapping it to get the concentrate. For internal ailments, the composition of medicines mostly consisted of more than one plant. For instance, to make a traditional tonic, they boiled various parts of plant such as rhizome of *Curcuma xanthorriza* Roxb., *Curcuma zedoaria* (Berg.) Roscoe, *Curcuma aeruginosa* Roxb. and *Curcuma domestica* Vahl; the leaf of *Physsalis angulata* L., *Blumea balsamifera* (L.) D.C., *Desmodium triquertrum* D.C., *Orthosiphon aristatus* (BL.) Miq., *Moringa oleifera* Lamk., *Eupatorium odoratum*; the root of *Carica papaya* L., *Imperata cylindrica*, *Areca catechu* L.; tree bark of *Allamanda cathartica* L. and stem of *Tinospora tuberculata* Beumee.

**Traditional Methods for Pre and Postpartum Care**

In Kampung Dukuh, pregnant women would visit the paraji firstly on the fourth month of pregnancy. On this visit, paraji would check the pregnancy condition and suggest the expectant to drink such kind of tonic consists of *Curcuma domestica* Vahl. mixed with honey and egg. On seventh month of pregnancy, the expectant would visit paraji gradually every two weeks. In this phase, paraji would start to give the expectant a massage to make sure the baby is in the proper position inside the uterus. On the final stage of pregnancy, before delivery, the patient would be suggested to drink the boiled water of *Ceiba petandra* (L.) Gaertn that was considered effective in enhancing contraction during labor. Paraji smeared the klentik oil (traditional virgin oil) mixed with the crushed of *Alium cepa* L. and *Zingiber purpureum* Roxb. on the belly of the expectant. This concoction will

| Plant part | Percentage (%) |
|------------|---------------|
| Root       | 5             |
| Stem       | 11            |
| Seed       | 3             |
| Fruit      | 21            |
| Flower     | 3             |
| Leaf       | 46            |
| Rhizome    | 7             |
| Tuber      | 4             |
result in colic effect to patients that aims to accelerate the birth process.

Paraji was also responsible for newborn care. Paraji would smear the newborn with the concentrate of *Zingiber purpureum* Roxb. especially on the heel, ankle, and stomach to warm the baby. The post-partum mother would be given the concoction known as opat puluh rupi which consists of 40 species of plants. These plants were washed and dried then crushed into powder. Later, warm water was poured into the powder, and the mix was given to the patient as herbal drink at dose of one tablespoon per 8 hours. Some ingredients of this concoction were rhizomes of *Kaempferia galanga* L., *Zingiber officinale* Roxb., *Curcuma zedoaria* (Berg.) Roscoe, *Boesenbergia pandurata* (Roxb.) Schlecht., and *Zingiber zerumbet* (L.) J.E.Smith; roots of *Cocos nucifera* L., *Areca catechu* L., *Physalis angulata* L., *Stachytarpheta indica* (L.) Vahl., *Imperata cylindrica* (Ness) C.E.Hubb. and *Arenga pinnata* (Wurmb.) Merr; tree barks of *Alstonia scholaris* (L.) R.Br. and *Allamanda cathartica* L.; and leaves of *Blumea balsamifera* (L.) D.C., *Dolichandrone spathecea* (L.f.)K. Schum., *Musaenda frondosa* L., *Erythrina subumbraens* (Hassk.) Merr. and *Cymbopogon citratus* (DC.) Stapf.

From the interview, it was found that labor complication of severe bleeding was mostly occurred. Therefore, paraji would give the patient extract of *Piper betle* and *Euphorbia hirta* L. mixed with soaked water of black rice (*Oryza sativa* L. var *formaglutinosa*). To avoid infection and to tighten up the vagina, the mother would sit on a hot pad made of ash wrapped with the leaf of *Ricinus communis* L. This treatment was done every day until day 40th after delivery. Moreover, to remove the stretch mark on belly skin after giving birth, mothers would smear their skin with crushed rhizome of *Zingiber zerumbet* (L.) J.E.Smith and leaf of *Eleusine indica* Gaertn. These two ingredients were pounded with lime. For contraception, the women of Kampung Dukuh used to drink the water decoction of banana blossom, rose flower, and flower of *Impatiens balsamina* L.

People of Kampung Dukuh obtained medicinal plants from five locations; buruan (37 species), huma (6 species), kebon (72 species), leuwung (42 species), and sidewalk (25 species). Buruan or home garden is the land around the house devoted to planting any kinds of plants including medicinal ones. Leuwung is the forest. The plants obtained from the forest were commonly of wooden materials (trees and shrubs), such as *Alstonia scholaris* (L.) R.Br., *Allamanda cathartica* L., *Melochia umbellata* O.Stapf., and *Cardiospermum halicacabum* L. Kebon is a semi cultivated land located on the forest edge, a hilly region far from hamlet. Kebon in Kampung Dukuh was an agroforestry typical. Plants were variedly grown in kebon from fruit to timber trees. Wild medicinal plants such *Ageratum conyzoides* L., *Mikania scandens* Willd, and *Euphorbia hirta* L. were also found in kebon. Huma is the cultivated land specialized in planting staple food plants such as rice, maize, and sweet potatoes. Huma is distinguished from kebon by looking at the composition of the plant. Huma is dominated by one kind of main plant. The wooden plant is rarely found in huma. Based on interviews and observation, 59% of medicinal plants in Kampung Dukuh were wild plants and the remaining 41% were cultivated plants. Most wild medicinal plants were obtained from kebon, leuwung, and sidewalk. Medicinal plants were intentionally planted in buruan and kebon.

**DISCUSSION**

This study has revealed important information on medicinal plants used by traditional people, traditional healers, midwife, and elder herbalists of Kampung Dukuh, West Java, to treat various ailments. It also demonstrated the vital role that medicinal plants play an essential part in the health care of these people. For local community like people of Kampung Dukuh, forest is the biggest part of their life. The community would utilize forest resources to fulfill their daily needs. Besides forests, other landscapes like farm fields, settlements, and even shrub filled fields are also utilized to support their life. Traditional communities who constantly interact with the surrounding environment tend
to have deep local knowledge related to the surrounding resources (Gadgil, Berkes, & Folke, 1993; Balick & Cox, 1996). In daily life, traditional people are strongly related to their natural environment, especially plants. Plants are used as food, clothing, shelter construction, medicine and so on. In Kampung Dukuh, some plants were also considered sacred or magical and used in traditional ceremonies or rituals and social activities of local communities.

Traditional people of Kampung Dukuh community were found to have knowledge about the use of plants for traditional medicine since they recognized 131 species of medicinal plants. We also calculated the number of species known by traditional people of other traditional ethnicities in Indonesia, namely those from two nearby traditional hamlets of Sundanese ethnicity in Kampung Kuta, Ciamis (Dwiartama, 2005) and in Kampung Naga, Tasikmalaya (Nurmalasari, Sukarsa, & Hidayah, 2012) which resulted in 148 and 108 species, respectively. Most dominant family used in Kampung Dukuh was Zingiberaceae with rhizome as the plant part mostly used. Most species on Zingiberaceae in Kampung Dukuh were cultivated.

Every region has its specific plant utilization systems. The system is related to the plant diversity in each region. Traditional people tend to practice a sustainable management system in utilizing the natural ecosystem to support long term humankind needs (Swanson, 1995). Traditional management in using natural resources can clarify the relationship between the conservation system and the use of natural resources. The people of Kampung Dukuh were observed to have particular characteristics in utilizing plants as medicines. These characteristics can be described into three aspects: location the plant obtained, plant status (wild or cultivated), and plant part used.

People of Kampung Dukuh obtained medicinal plants mostly from their agroforestry field (kebon) dominated with fruit/food trees such as jackfruit (Artocarpus heterophyllus), durian (Durio zibethinus), rambutan (Nephelium lappaceum), coffee (Coffea sp.), and pepper (Piper nigrum). Wild plant considered as medicine was allowed to grow in kebon, thus the majority of medicinal plants could be found in this location. The concept of kebon according to people of Kampung Dukuh related to the location to obtain medicinal plants was slightly different from other community in comparable research. For example, Menyah Tribe in Arfak Mountain knew kebon as mekeni. Mekeni is land planted with fruit trees dominated with cocoa. However, Menyah Tribe got the majority of the medicinal plants from primary forest, called Merenda (Moeljono, 1998). Other community in Dheeraa, Ethiopia, obtained 92% of their medicinal plants from the natural vegetation ecosystem, indicating that the local community of Dheeraa did not practice the medicinal plant planting in cultivation area like home garden or farm (Wondimu, Asfaw, & Kelbessa, 2007).

More than 40% of medicinal plants were planted by the community. Most of domesticated medicinal plants were planted in home garden. In Kampung Dukuh, home garden was where many kinds of wild plants, semi-cultivated plants, and cultivated plants grow together. Home garden has a vital role in many aspects including the economy, ecology, social and culture (High & Shackleton, 2000; Méndez, Lok, & Somarriba, 2001; Senanayake, Sangakkara, Pushpakumara, & Stamp, 2009). Each home garden has a unique structure, function, and composition depending on the natural ecological states (Galhena, Freed, & Maredia, 2013). For instance, Batak Karo sub-ethnic in North Sumatra, Indonesia, intentionally planted a total of 85 species of plants as traditional medicine and foodstuffs in their home garden with most plant part used was fruit (Silalahi & Nisyawati, 2018). Anak Rawa Ethnic in Riau planted 8 species of of home garden typical plant aimed as medical purpose, such as Brueea javanica, Globba pendula, Flemingia strobilifera, Trema tomentosa, Ilex cymosa, Timonius sp., Uncaria sp., and Dillenia excelsa (Utami, Zuhud, & Hikmat, 2019).

The people of Kampung Dukuh also obtained various kinds of medicinal plants from the forest, yet it was not the most proportion. They were allowed to take the natural substance in the forest under the control of kuncen (local forest caretaker) rules.
This control management of natural resources by kuncen aimed to keep up the stability of plant diversity of the local forest. The concept of sacred forest (hutan larangan) shows the system of resource patterning of the community to ensure their natural sustainability. Conversely, the majority of traditional healers of many places and community in the world do not believe that the availability of medicinal plants in nature is going to drop (Swanson, 1995). They believe that the medicinal plant is the gift from the supreme being and will always be available in nature. This concept limits the effort of the community to maintain the number of medicinal plant species in their natural state.

The conservation effort in maintaining the sustainability of medicinal plants in nature is closely related to the plant part used as medicine. Plant parts that should be restricted in use are root, stem, tree bark, and tuber. The medicinal plant part mostly used by the people of Kampung Dukuh was leaves. The use of leaves as medicines has a limited impact on plant for their potency and fast regeneration. Medicinal plants were either used singly or as a mixture of more than one species to make a specific efficacy. The use of various plants for the effective treatment of one particular disease could be due to the synergistic effect. One plant could be used for many diseases probably due to the presence of various metabolites and also the fact that the same molecule can be active on different pathogens (Namukobe et al., 2011). A comparable study in Kenya also showed that leaves were preferred to be used as medicine to other parts of the plant (Jeruto, Lukhoba, Ouma, Otieno, & Mutai, 2008). As comparison, Anak Rawa community in Riau mostly used root part. This community believed that the root has the strongest ingredient and last longer on the body than other plant parts (Utami et al., 2019). Other nearby community, i.e. Batak Karo sub ethnic utilized fruit part the most (Silalahi & Nisyawati, 2018). Leaf part that was mostly used by Kampung Dukuh community indicated that that community respected the sustainalibity of biological resource and valuable knowledge in recognizing plants as medicines. Overall, they can integrate the culture of the utilization of plants as traditional medicine with the effort to conserve plant diversity in nature.

CONCLUSION

Based on this study, it is concluded that local knowledge of Dukuh people on medicinal plant diversity was still preserved. People of Kampung Dukuh recognized 131 species of medicinal plants from 51 families. Moreover, families with the most number of species were Zingiberaceae (14 species), Poaceae (8 species), Asteraceae (7 species), Fabaceae (6 species), and Solanaceae (6 species). The community classified two types of treatment; external and internal treatment. For the external treatment, the processing was mostly by crushing from a single plant composition only, while for the internal treatment, the processing was generally by boiling the plant to get the extract or by scrapping it to get the concentrating, mostly from two or more mixture of plants. The most number of plants used were observed on pre and postpartum care. Based on the plant part used and the distribution of medicinal plant found, it is reflected that their system in using plants as traditional medicine was specific. The people of kampung Dukuh can integrate the culture of plant using as medicine with the effort to conserve their plant diversity.

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