Medical Plants in Usadha: Loloh as Balinese Medicine and Traditional Herbal Product in Educational Perspective

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Abstract—This research aims at conducting an investigation about medical plants written in Usadha manuscript (Balinese traditional healing text). The medical plants are ingredients for making herbal namely loloh. The sample was selected purposively from several sources. Usadha text about medical plants were analyzed by content analysis. The text data about Usadha was recorded from the traditional healers (balian) by using in-depth interviews. Data about potential consumers of the herbal medicine, loloh, were obtained from vocational school teachers and lecturers through questionnaire technique. Finding in this research is the enhancement of herbal loloh research not merely about the ingredients but also about the educational sight and the value of caring of the health of reproductive organs.

Keywords—loloh, medicine, herbal, education

I. INTRODUCTION

Traditional medical material is written in lontar usadha and has been used by balian’s to cure various diseases (Tantra and Rasna, 2017: 106). They are used as 1) loloh (herbal drink), 2) boreh (powder), 3) tutuh (drop), 4) sumbuh (spurt), and 5) oles (rub oil) [1], [2], [3], [4].

Since a long time ago, biodiversity has been used by our ancestors for medicine [5], [6]. However, the threat to natural resources caused by commercialization is much greater than that from the consumptive needs [7], [8]. This shows the little attention to medical plants [9]. This is confirmed in Trubus Infolet Herbal Indonesia Berkhasiat. It is said that there are only nine special quality plants that have been clinically tested, namely: Indian bay leaf (Syzygium polyanthum), green chireta (Andrographis paniculata), turmeric (Curcuma longa), red ginger zingiber (rubrum rhizoma), bay cedar (Guazuma ulmifolia), Java ginger (Curcuma zanthorrhiza), common guava (Psidium guajava), Javanese long pepper (Piper retrofractum Vahl), and cheese fruit (Morinda citrifolia).

Balinese knowledge about the varieties of medical plants, and human health and fitness is written in palm leaves manuscript entitled Rukmini Tatwa. The content of Rukmini Tatwa comprises the benefits of some medical plants, especially for the health of the reproductive organs. Some benefits namely to improve the function of female intimate organ, to enhance the intercourse enjoyment, to look after the erectile capability of male intimate organ and also to improve the fertility. The knowledge of medical plants is becoming less known by people since the enthusiasm of learning and using the herbal medicine is also regressing day by day [4].

The simplicity of modern medicine causes a shift in popularity of the traditional medicines into the modern ones. This shift is caused by the regress of comprehending the palm leaves manuscript generally and sustaining the lexical of medicine plants [10], [11]. In other words, it can be said there is cultural erosion in Bali especially the knowledge about food plants and nutraceutical [12].

Indonesia is the second greatest country having various biodiversity after Brazil [13]. The existence of biodiversity as medicine has been known since thousands years ago [5].

Traditional healers use Usadha manuscripts as the reference for medical treatments. Lontar usadha consists of mantras, healing rituals, knowledge about leper especially the symptoms and the herbal ingredients used to cure it. Usadha Rare is written about some treatments for children. Usadha Kuranta Bolong contains the cure for babies and children. Usadha Carken Tingkeb contains types of medical plants; the content of Usadha Tua is about some diseases suffered by old people; Usadha Dalem contains treatments for internal disease; Taru Pramana is a knowledge about plants and the advantages; and Tutur Buta Kecapi contains about balian’s ethics [14], [15]. Formerly medical plants were used based on experiences [16]. Serat Centhini (1814) is a text about everything concerning Javanese community life, including traditional medical system. The system that has educational aspects.

II. METHODS

The data collection is obtained by recording and interviewing some teachers at vocational schools and lecturers. Besides interview technique, some literary studies are involved including the eighteen palm manuscripts, lontar usadha. Several traditional healers including three from lecturers were also involved as informants. They were interviewed through in-depth interview technique. The texts
about medical plants were analysed by using content analysis. There are three groups of data namely: interview text, questionnaires and writings.

The data about traditional healers were obtained through interviewing. The data about medical plants were obtained from literary studies. And the data about potential consumers of the herbal medicine, loloh, were obtained from vocational school teachers and lecturers through questionnaire technique.

III. RESULTS AND DISCUSSION

fruit (Monrendi citrifolia), 9) Betel leave (Piper betel), 10) Star fruit (Averrhoa carambola), 11) Brown rice (Oryza sativa), 12) Cinnamon (Cinnamonum zeylanicum), 13) Weedy rice (Oryza satival F. glutinosa al auct), 14 Pennywort (Hydrocotyle sibthorpisides lam), 15) Blumea (Blumea balsamifera DCF), 16) Chinese keys (Gasatrochilus panduratum ridl), 17) Indian fleabane (Plu Shea Indica (L) 

3.1 Researches about loloh as Herbal Medicine

3.1.1 Research about loloh as Medicine

According to Tantra and Rasna [17] traditional drink in the form of loloh also serves also as medicine. Kinds of loloh namely 1) Greater galangage (Kaempferia galangga L), 2) Wild ginger, tematis (Curcuma purpurascens Bl.), 3) Wild ginger, lempuyang (Zingiber zerumbet (L)), 4) Fruit bearing (Averrhoa bilimbi), 5) Blumea, Sambong (Blumea balsamifera D.C), 6) Ripening fruit, kacemcem (Spondias pinata kurz), 7) Turmeric (Curcuma domestica), 8) Cheese

Lees), 18) Sugar apples (Annona suquamosa L), 19) Garden shrub (Graptoptomum pictum L., and 20) Centella (Centella asiatica (L)). The ingredients of loloh as herbal medicine are in Table I. The data are collected from traditional healers, those who are believed having ability to cure [18].

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of medical plants</th>
<th>Scientific Name</th>
<th>Useful parts of plant</th>
<th>Indications (according to informants)</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Usadha</td>
<td>Traditional Healers</td>
</tr>
<tr>
<td>1</td>
<td>Greater galangage</td>
<td>Kaemferia galangga L.</td>
<td>Tuber/root</td>
<td>cough, rhematism, itchy skin, babies’ stomach ache</td>
<td>Volatile oil with the components: Etil, metoksisinamat, etilinsinamat, borneol, karbon</td>
</tr>
<tr>
<td>2</td>
<td>Wild ginger Tematis</td>
<td>Curcuma purpurascens Bl</td>
<td>Tuber</td>
<td>joints swelling, difficulty urinating, cough, hard breathing in children, diarrhea containing blood</td>
<td>Volatile oil, champor, bereol (Suryadarma (2010: 301)</td>
</tr>
<tr>
<td>3</td>
<td>Wild ginger, Gamongan</td>
<td>Zingerber aromaticum vall</td>
<td>Tuber</td>
<td>pain in the right part of stomach, drop in consciousness, swelling in legs, asthma, amena</td>
<td>Volatile oil, limonen and zirumen (Suryadarma, 2010: 301)</td>
</tr>
<tr>
<td>4</td>
<td>Fruit bearing Averrho belimbi L</td>
<td></td>
<td>Flower, root, leave</td>
<td>heatness, reddish faeces</td>
<td>Saponin, tahurn, format acid, glucosada, oscalal calcium (Harana, 2009: 36) [30], Dalimarta, 2008: 8206; Fitol, Flavonoid tanin, citric acid, citric calium (Mun’.om,201;31) [31]</td>
</tr>
<tr>
<td>5</td>
<td>Blumea, Sambong</td>
<td>Blumea balsamifera D.C</td>
<td>Leave</td>
<td>urine problem (containing blood and pus) (Tengah,1995: 638)</td>
<td>Borneol, cineol, meal, eter, palmitinacid, (Septian, 2009: 232[2])</td>
</tr>
<tr>
<td>6</td>
<td>Ripening fruit, Cemcem</td>
<td>Spondias pinata kur</td>
<td>Leave, skin</td>
<td>gotter, Diabetes</td>
<td>---</td>
</tr>
<tr>
<td>7</td>
<td>Turmeric, Kanyit</td>
<td>Curceena domistica</td>
<td>Tuber</td>
<td>fever, flu, rheomatic, diarehea</td>
<td>Water, calorie, carbohydrate, protein, calcium, phosphorous, vitamins A&gt;B,C, volatile oil, curcumin (Sejati, 2003) [32]</td>
</tr>
<tr>
<td>No.</td>
<td>Plant Name</td>
<td>Part Used</td>
<td>Symptoms</td>
<td>Vitamins</td>
<td>Compounds</td>
</tr>
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</tr>
<tr>
<td>8.</td>
<td>Morinda citrifolia</td>
<td>Fruit, root</td>
<td>fever, lack of appetite</td>
<td>fever, lack of appetite</td>
<td>Root: Cepronacind, Cearilat acid, morinda, Leaf: protein, lime, iron, carotin (Hariana, 2009)</td>
</tr>
<tr>
<td>9.</td>
<td>Piper betle L</td>
<td>Leaf</td>
<td>womb refresher, curing cough</td>
<td>womb refresher, curing cough</td>
<td>Volatile oil, cavical, carvocal, (Nuraini, 2014) [24], Elshabrana, 2013 [25]</td>
</tr>
<tr>
<td>11.</td>
<td>Oriza sativa L.B.</td>
<td>Fruit</td>
<td>lack of appetite, dry lips, diarrhea, painful stomach, diarrhea and bleeding, diabetes</td>
<td>lack of appetite, dry lips, diarrhea, painful stomach, diarrhea and bleeding, diabetes</td>
<td>Carbohydrate, protein, tiamin, low glicemic inde amino acid, iron, selenium fiber, vitamins B 6, phytochemical fenolat magnesium (Khalil, 2016: 49) [28]</td>
</tr>
<tr>
<td>12.</td>
<td>Cinnamon, Kayu manis</td>
<td>Tree, leaf</td>
<td>white mouth, dirty condition and infection, gout, stomach ulcer, gastric problem</td>
<td>white mouth, dirty condition and infection, gout, hernia, stomach inflammation, gastric problem</td>
<td>Volatile oil, tanin, resin, (Putra, 2014: 155), Sinaraldeh 60-75%, sinamul acetat, eugenol 1-5%, betha carotine 1-4%, finalel 1-5 (Mun'in, 2011;53)</td>
</tr>
<tr>
<td>13.</td>
<td>Oriza satival F. Glutinous alba Auct</td>
<td>Grain</td>
<td>baby stomach disorder, suffering from intestinal worms lack of appetite, high fever, restlessness</td>
<td>baby stomach disorder, suffering from intestinal worms lack of appetite, high fever, restlessness</td>
<td>Protein 7.0 g, fat, 0.7t, carbohydrate,78.0 g, calcium 10.0 mg, fosfor, 148.0 mg, iron, 0.8 mg, vitamin B1 0.2 mg and water 13.0 mg (Khalil, 2016: 95)</td>
</tr>
<tr>
<td>14.</td>
<td>Blumea Basamifera DCF</td>
<td>Leaf</td>
<td>cough with bleeding</td>
<td>cough with bleeding</td>
<td>coumarin, hiperin (Damarthia, 2008: 159 -160 BS geoBm 1(2013: 327)</td>
</tr>
<tr>
<td>15.</td>
<td>Blumea Basamifera DCF</td>
<td>Leaf</td>
<td>intestinal worms</td>
<td>intestinal worms</td>
<td>-</td>
</tr>
<tr>
<td>17.</td>
<td>Pluchea Indicia (L.) Lees</td>
<td>Leaf</td>
<td>lack of appetite, digestive problem, fever, cough, difficult breathing</td>
<td>lack of appetite, digestive problem, reducing fever, cough, difficult breathing</td>
<td>Alkaloid, volatile oil, quercetine, saponin, propofenol, flavon, alkaloid (Untang, Trubs, n.d: 216) [32]</td>
</tr>
<tr>
<td>18.</td>
<td>Graftophillum Pictum L</td>
<td>Leave</td>
<td>Cough, flu</td>
<td>Cough, flu</td>
<td>-</td>
</tr>
<tr>
<td>19.</td>
<td>Morinda citrifolia</td>
<td>Fruit, leave</td>
<td>Abses, dog worms</td>
<td>Abses, dog worms</td>
<td>Borneal, comphor, terpene alkaloeo anomam im roost and bark. The seeds contain fat, resin. The fruit contains amino acid and tannin</td>
</tr>
</tbody>
</table>
3.1.2 Research on Loloh as Balinese Traditional Drink

The ingredients for this Balinese traditional herbal drink are found in lontar usadha that describes the medical plants [29], [30], [31]. Traditional food is consumed by certain ethnic communities [32]. Traditional food has the competitive advantage that is natural, rich in taste and available all year long [33]. The weakness is the unattractive presentation, local taste, nonstandard mixture [34]. Apart from this, industry drink products monopolize local, national and international markets [35]. We are very aware that the drinks by alcohol. The ex-President of France said that our greatest enemy is alcoholic drink. It will cause us a greater problem than the battle against German [36]. In the light of these problems, it is time for moving from alcohol consumers to traditional drinks, except tuak and arak, as traditional drink can increase the community economy [36], [37], [38]. If the traditional drink is presented in a modern presentation, laboratory testing, so that it meets health requirements, it will bring benefit for holding capacity of tourism development and creative economy through local culinary since tourism sector needs support from natural food and drink providers [39].

Medical plants can function as medicine and herbal beverages, for example kencur to cure cough, rheumatism, itchy skin, disease suffered by babies. In addition, it can also be used as herbal treatments such as jamu beras kencur. Similarly, wild ginger, temutis as to cure swelling, mix with red ginger to serve as herbal drink. Cheese fruit can cure fever, lack of appetite. In addition, it can be used as a herbal drink. This happens because the plants serve as medicine [16]. The use of natural substances as traditional medicine in Indonesia has been done by our ancestors [40]. The use is related to the historical background of Bali community life [41]. The background is that Balinese were farmers, the people were close to agricultural crops like ginger, turmeric, rice and galingale, wild ginger temu lawak, which are traditional drink ingredients. The use of herbal drink is part of the nation’s culture [42], both as a drink and a medicine. The basic ingredients of jamu (traditional herbal drink) are ginger, turmeric, wild ginger temulawak and galingale which are usually used as traditional medicines, since the effectiveness of the spices that is related to antioxidant in ginger [43], turmeric as anti-rheumatic [44], temulawak as anti-hepatitis [45], [46], [47]. Out of all kinds of loloh (herbal drink), not all have commercial potential because of their tastes. Those that have the commercial potential are galingale, temutis (Curcuma Purpurascens), cemcem (Spondias Pinata Kurz), mengkudu (Morindi sold in the market contain much alcohol which is consumed not only by young people, but also by below young children, old people, celebrities, political elite [36].

In U.K. scholars stated that 95% of mental cases were caused by alcoholic drinks. French Health Minister said that the mortality rate caused by alcohol is 20,000 people each year. Secretary General of the Committee for Alcohol Eradication stated that 25% of the industrial accidents and 57% of highway accidents were caused Cirifolia), brown rice (Oriza sativa linn.F), beluntas Pluiechea Indica (L) Lees) and turmeric.

3.1.3 Medical Plants in Educational Perspective

The use of medical plants to be loloh are not only about the advantage of herbal medicine but also about the health education. In this case, the educational perspective has its role. Loloh is useful as herbal treatments which usages, ingredients and dosages have to be learned. Meanwhile the plants have to be available during the necessary time. It means that the plants have to be cultivated. It should be learned how to seed, to plant, to look after, and to harvest the plants especially how to choose the best harvesting time that is related to the quality of the crops.

People also would like to know the names of those medicine plants. The names and the description are studied by using Ecolinguistics approach.

The customs of consuming loloh is one of some efforts to grow the caring of local culture and natural products. The next educational perspective is that by maintaining the customs of consuming loloh, people tend to be economists, especially in saving expenses for buying any other supplements or chemical medicine.

The customs of consuming loloh can emerge the curiosity of maintaining, and preserving both the medical plants and the planting areas. The younger generations by the help from their seniors would learn more about loloh. Especially, children would learn about the kinds of medical plant and the plants’ characteristics. This learning is related to ecolinguistics.

The knowledge of medical plants cultivation has ecopedagogical, ecological, and ecolinguistical practices. Moreover, the cultivation of medical plants can coincidentally grow the eco-tourism since there should be a pararel process of cultivating and producing the herbs, which are actually kinds of attraction.

The next educational aspect is the area of medical plants cultivation can be a natural laboratory for students to learn many disciplines, among them, the etnofarmachology, ecolinguistics, and etnobotany.
IV. CONCLUSION AND SUGGESTION


2. The research of *loloa* as Balinese traditional herbal drink shows that it has the strength because it is natural, useful as medicine and has the economic potential. The herbal plants in this category are galangal, wild ginger, *temutis*, ripening fruit, *turmeric*, cheese fruit, brown rice, chinese keys, and blumea.

3. Medical plants have the educational perspective specifically it encourages an interdisciplinary studies, namely, ecology, eco-pedagogy, ethnobotany, eco-linguistics, and ethno-pharmacology. Besides the cultivation of medical plants emerges the development of ecotourism.

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