Ethnomedicinal study of the Sundanese people at the Bodogol area, Gede Pangrango Mountain National Park, West Java

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ABSTRACT. Traditional medicine is often considered adequate even in present times, especially when modern medical treatment is diffficult to obtain. Indonesia, a country with rich biodiversity and a multicultural society, has a wealth of medicinal plant knowledge. Observations on the ethnomedicinal practices of the Sundanese people, conducted in several villages (Cipeucang, Ciwaluh, Lengkong Girang, Lengkong Hilir and Sungapan) around the Bodogol area in West Java, are summarised.

Keywords. Bodogol, ethnomedicine, Gede Pangrango Mountain National Park, Indonesia, medicinal plants, Sundanese people, West Java

Introduction

In traditional societies worldwide, plants feature importantly in the treatment of many ailments, in particular infectious and parasitic diseases, diarrhoea, fever and colds, as well as in birth control and dental hygiene. According to the World Health Organisation (WHO), traditional medicine is a rather vague term for distinguishing any ancient or culturally based health-care system from orthodox scientific medicine, or allopathy. This includes systems that are currently regarded as indigenous or unorthodox, alternative, folk, fringe, and even "unofficial". Both the major Asian systems (e.g., the Chinese, Ayurvedic, Unani, Unani Tibb medical systems), which are comparatively well documented since ancient times, as well as the less widespread, largely orally transmitted practices of other traditional communities, are included in this understanding of traditional medicine. It is estimated (Farnsworth 1994, Cotton 1996) that about 64% of the world's population depends on some form of traditional medicine for their health care needs.

It was not until the 1970's that a more organised study of traditional medicine and herbal remedies received due academic attention. The World Health Organisation, seeing the success of Chinese heterox healthcare programmes, began to encourage studies and approaches that aimed at combining traditional and Western resources. Effective ethnomedicinal research should consider related aspects, such as traditional concepts of the origins of disease and local perceptions of the efficacy of particular

treatments, applicable even when there is detailed documentation already available, and certainly for orally transmitted practices. The study of ethnomedicine in a cultural context is largely medical ethnobotany, involving the identification of botanical species used in traditional remedies and even understanding folk classification of medicinal plants (Balick & Cox 1996). Frequently, ethnobotanical inventories of plant species used in healing are drawn up from interviews or surveys based on collection of voucher specimens in a given area (Jain & Mudgal 1999). Some studies are based on the identification of medicinal plants sold in markets.

Treatments with Old World medicinal plants were mentioned in the *Materia Medica* of Dioscorides in the first century BCE. As scientists of western civilisations became more interested in medicinal plants from Asia, Jacobus Bontius who worked for the VOC (East India Company) conducted research on Javanese medicinal plants in the 1600s, and the German naturalist Rumphius, who became deeply involved in the study of plants and animals in Indonesia in the 1700s, also documented plants known as cures. In the 1800s, during the British occupation, Thomas Horsfield assisted Raffles in studying medicinal plants of Central and East Java. Their work inspired others, who became engaged in ethnobotany (see Klokke 1998).

In fact, the study of medicinal plants should be emphasised for Indonesia, which has a rich biodiversity and a multicultural society with long-standing knowledge in the different forms of ethnomedicine and plant use. We carried out research into the knowledge of medicinal plants in several villages around the villages of Bodogol, viz., Lengkong Girang, Ciwaluh, Cipeucang, Lengkong Hilir, and Sungapan. The study was conducted from November 18th to 22th 2008.

Study site and overview of the Sundanese people

West Java occupies a total area of 35,746.026 square kilometres, consisting of 16 counties and 9 cities. West Java is known for its fertility and there is still an active volcano. The region ranges generally from flat to undulating, to hilly and mountainous in parts. Annual rainfall exceeds 2000 mm. The villages in the Bogor regency where research was conducted include Sungapan village, Lengkong Hilir, Ciwaluh, Lengkong Girang (a part of Wates Jaya village), and Cipeucang (including rural areas in Buncir Sand). These villages engage much in rice cultivation, but medicinal plants can still be found in the wild or are planted.

As a tribe, the Sundanese were forerunners of civilisation established in the Indonesian archipelago, beginning with the founding of Salakanagara, the oldest kingdom in Indonesia. Descendants of this Sunda Kingdom have founded other great kingdoms in the archipelago, including Sriwijaya, Majapahit, Mataram Kingdom, the Kingdom of Cirebon, and the Kingdom of Banten. Sunda is the culture of the people who live in West Java. The Sundanese believe that they should possess the ethos or character for a virtuous life in their culture, often described as *Kasundaan* ("Sundanese-ness"). Many Sundanese expressions representing good, white, clean, or bright exist; and the moral characteristics of *cageur* (Sundanese for 'healthy'), *bageur* (good), *bener* (right), *singer* (introspective), and *pinter* (intelligent) have existed for over a thousand years.

Sundanese people traditionally eat various kinds of plants and seeds obtained from their gardens or fields. Commonly available plants that are sometimes used for healing are called *lalap*.

Methods

Medicinal plant species were collected in five villages around Bodogol, and for 80% of these, uses were documented through surveys and interviews (Table 1). Sometimes, different local names for the same medicinal plant species were available from different persons, and different tribes; this was also checked through further interaction with the local shaman (*paraji*). The results obtained include those from the interview and persons who have expertise in treatment, as well as elderly individuals who are considered knowledgeable about medicinal plants. In recording the plant names and uses, herbarium specimens were also taken for identification and as vouchers. Notes on plant use also included the plant parts that were taken. A local resident served as translator during interviews. Informants were asked to describe their knowledge about traditional medicine; how medicinal plants were prepared for particular treatments; how their knowledge was acquired; and how they disseminated their skills. The literature was also consulted where possible.

Results and discussion

Perception about illnesses

Based on the interviews, the Sundanese perception is that disease can be caused by behaviours which lead to imbalance in the body elements, in addition to diseases caused by the supernatural, such as spirits. Imbalance in the body can be due to poorly balanced diet or excessive and uncontrolled human emotion such as fear, hate or joy.

Members of the community who were interviewed accept that a person is truly ill and in pain only when he is suffering from chronic disease or other health problems that cause work activities to be disrupted. Even if a person has minor problems such as colds, he is not considered ill if his work routine is not disrupted.

Plants in traditional medicine

The theory of disease (Foster & Anderson 1978) includes belief in natural health, causes of disease and different types of medicine and healing techniques. In the traditional theory of disease, pain is usually accepted as a consequence of some taboo being broken, or an imbalance between hot and cold elements in the body. Local knowledge is that which is traditionally owned and developed by a community in response to, and in interaction with, its environment. According to Koentjaraningrat (1989), each culture has a complex set of knowledge about nature, and the plants, animals, objects and people around them that are abstracted into the concept, theory, and establishment (*koentjaraningrat*). Traditional healers, in this case a shaman, *datu*, or teacher, provide

explanations and interpretations about the illness and the use of materials or herbs for treating or curing diseases.

In this paper, the results represent part of the local knowledge of medicinal plants of the Sundanese people in five villages around Bodogol. Basically, people in all villages visited are still very dependent on the plants around them. In addition to medicine, they also use it as animal feed for such as goats and sheep, for firewood, and also to make household appliances. Among the five villages visited, three essential aspects of traditional treatment using medicinal plants were noted. First was the prominence of treatment after, or the recovery from, childbirth, which is usually done by the *paraji*. Second was the existence of persons who believed that they had the ability to cure diseases. Third was that treatment typically made use of plants around the community, which can be easily obtained.

Treatment techniques are varied. There are plants that can be eaten as part of the treatment. Sometimes, plant parts are brewed with hot water, grated and kneaded and then applied onto an affected body part to be treated. Another use is by mixing with other ingredients and then boiling to obtain a concoction or infusion that is taken orally. A fourth way is to incorporate a medicinal herb into food dishes, for example, by frying in mixture with egg. One other way is by soaking the plant material and bathing with the infusion. Knowledge of such treatment methods is obtained from parents and the community at large.

The 80 medicinal plants recorded around the five villages are listed in Appendix A. An important use of medicinal plants is for recovery after childbirth. Often, a woman who has just given birth will make a *godogan* consisting of roots and leaves of *buntiris* (*Kalanchoe pinnata* Pers., Crassulaceae), *babadotan* (*Ageratum conyzoides* L.), *daun rane* (*Sellaginela plana* (Desv.) Hieron.) and *jawer kotok* (*Plectranthus scutellarioides* (L.) R.Br.). Plants that are often mentioned by informants include *buntiris* and *kumis kucing* (*Ortosiphon aristatus* (Blume) Miq., Lamiaceae). Being easy to obtain, *buntiris* is still often used to treat fever in children, while *kumis kucing* is believed to cure various diseases. In these five villages, most community gardens are planted with *kumis kucing*, which is sold to cities.

For 46 medicinal plant species recorded in Lengkong Girang Village, the uses were for curing or treating fever (15 species), sprue (1 species), pain in the digestive tract (3 types), high blood pressure (2 types), decreased vitality (8 types), skin diseases (3 types), stroke (3 kind), injuries due to knives (1 species), toothache (1 species), recovery after childbirth (5 types), and *ambayen* (1 species). These mainly utilised leaves (37 species), roots (3 types), seeds (1 species), and tubers (4 types).

In Ciwaluh Village, 23 species of medicinal plants were recorded, used for treating fevers (3 types), recovery after childbirth (8 types), diarrhea (1 species), knife wounds (1 species), nausea and convulsions (1 species), pain when defecating and urinating (2 types), hypertension (1 type), and as an "energy booster" (2 types) and general medicine for all diseases (1 species). The plant parts used were leaves (17 species), roots (1 species), bulbs (2 types), and stems (2 species).

At Cipeucang Village, 29 species of medicinal plants were documented, for treating bone fractures (4 types), diabetes (1 type), kidney problems (2 types),

cancer (2 types), low vitality (2 types), fevers (2 species), recovery after childbirth (7 species), coughs (2 types), abdominal pain (2 types), constipation (1 types), skin diseases (1 species), knife wounds (2 types); also generally for all diseases (3 types), and for casting out spirits from young children (1 species). The parts used were leaves and flowers.

From Lengkong Hilir Village, 16 species of medicinal plants were recorded. These were for curing fevers (3 types), pain in the digestive tract (4 types), hypertension (2 types), sprue (1 type), heatiness (1 species), low vitality (5 types), skin diseases (1 type), back pain (4 types), fatigue (3 types), and toothache (1 species).

At Sungapan Village, 17 species of medicinal plants were recorded, used for treating fevers (1 species), pain in the digestive tract (2 types), gout (4 types), diabetes (4 type), low vitality (4 species), recovery after childbirth (1 species), bleeding after childbirth (3 types), dizziness (1 species), cough (1 species), anaemia in women (1 species), and sore eyes (1 species). All these utilised only leaves.

At the present time with more advanced medical facilities and many kinds of medicines commercially available shops, drugstores and pharmacies, it is possible that there should be increasing erosion of medicinal plant knowledge. However, in many cases, people still remember traditional herbal treatments they were taught by their parents. The interviews verified that old people knew more about what plants are used as medicines than younger people, and clearly parents who used medicinal plants attempted to pass this knowledge down to their children. According to Ms. Pupu, a resident of Ciwaluh Village, if someone had knowledge that is not utilised, they will not be rewarded after death.

The people who still use medicinal plants do not strongly believe in modern drugs. It is also for economic reasons that they use medicinal plants, which are cheaper and easier to obtain. Conversely, those who have switched over to modern medicine say that modern medicine heals faster and was more convenient because it does not require any processing by the user beforehand. Medicinal plants are usually the "first aid" or a "last resort". This can be gathered from the interviews with Ms. Yanti in Cipeucang Village, who suffered from chronic cough. She visited the doctor but the cough did not go away, and eventually tried *capituheur* (*Mikania cordata* (Burm.f.) B.L.Rob.), a plant believed to cure coughs. After drinking an infusion regularly, the coughing ceased. In contrast, Mr. Ujang, a resident of Lengkong Hilir Village, took *hantap* (*Sterculia rubiginosa* Vent.) as a kind of "first aid" for a toothache.

Conclusion

Knowledge of medicinal plants in the five villages studied appears to be still substantial, but perhaps just changing. It can be sensed, however, that when there is reduced dependency on medicinal plants, knowledge of plant uses will become increasingly reduced. Culture is dynamic and growing, and more changes will definitely come (Naranjo 1997). There is certainly an urgent need to document this knowledge.

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Appendix A. List of 80 medicinal plant species recorded in the Bodogol area, West Java. The villages studied are Cipecang (CP), Ciwaluh (CW), Lengkong Girang (LG), Lengkong Hilir (LH) and Sungapan (S). A '+' indicates that the species was recorded at a particular village.

Local Name	Species, Family	CP	CW	LG	LH	S
Akar eurih	*Imperata cylindrica,* Poaceae	+		+	+	
Alpukat	*Persea americana,* Lauraceae	+			+	
Antanan	*Centella aciatica,* Apiaceae		+	+		+
Babadotan	*Ageratum conyzoides,* Asteraceae	+	+	+		+
Babawangan	*Peperomia pelucida,* Piperaceae			+	+	
Baluntas	*Clerodendrum buchananii,* Lamiaceae			+		
Bawang merah	*Allium cepa,* Amaryllidaceae		+	+		+
Bawang putih	*Allium sativum,* Amaryllidaceae			+		
Bijangut	*Mentha arvensis,* Lamiaceae	+				
Brotowali	*Tinospora crispa,* Menispermaceae	+				
Buntiris	*Kalanchoe pinnata,* Crassulaceae		+	+		+
Capituheur	*Mikania cordata,* Asteraceae	+				
Cecenet	*Physalis minima,* Solanaceae	+		+	+	
Cengkeh	*Syzygium aromaticum,* Myrtaceae			+		
Daun calincing	*Oxalis corniculata,* Oxalidaceae			+		
Daun cengek	*Capsicum frutescens,* Solanaceae					+
Daun jambu	*Psidium guajava,* Myrtaceae		+	+		+
Daun kapuk	*Ceiba pentandra,* Malvaceae			+		

Daun katomas	*Euphorbia heterophylla*, Euphorbiaceae	+				
Daun kopi	*Coffea arabica*, Rubiaceae	+				
Daun mangga	*Mangifera indica,* Anacardiaceae	+				
Daun paria	*Momordica charantia,* Cucurbitaceae			+	+	
Daun penurun tensi darah tinggi	*Pilea microphylla*, Urticaceae				+	
Daun putri malu	*Mimosa pudica,* Leguminosae			+		
Daun rambutan	*Nephelium lappaceum,* Sapindaceae	+				
Daun rane	*Sellaginela plana,* Sellaginellaceae	+	+	+		+
Daun saga	*Abrus precatorius*, Leguminosae	+				
Daun sembung	*Blumea balsamifera,* Asteraceae			+		
Daun seureuh	*Cymbopogon citratus,* Poaceae			+		
Daun sirih	*Piper betle*, Piperaceae	+				
Daun sirsak	*Annona muricata,* Annonaceae	+		+		
Daun waru	*Hibiscus tiliaceus,* Malvaceae	+				
Daun wera hijau dan merah	*Hibiscus rosa-sinensis,* Malvaceae			+		
Gedang ganul	*Carica papaya,* Caricaceae			+		
Gedebong	*Piper umbellatum,* Piperaceae		+			
Hantap	*Sterculia rubiginosa,* Sterculiaceae	+			+	
Jambe/pinang	*Arecha catechu*, Arecaceae	+				
Jawer kotok	*Plectranthus scutellarioides,* Lamiaceae	+	+	+		+
Jotang	*Spilanthes iabadicensis,* Asteraceae	+				
Kaca piring	*Gardenia jasminoides,* Rubiaceae		+	+		+
Kahitutan	*Lasianthus inodorus,* Rubiaceae				+	
Karas tulang	*Turpinia montana,* Staphyleaceae		+			+
Katomas	*Euphorbia heterophylla,* Euphorbiaceae				+	
Kaworo	*Abelmoschus moschatus,* Malvaceae		+			+
Kecubung merah dan putih	*Datura metel,* Solanaceae			+		
Keluwih	*Artocarpus camansi,* Moraceae			+		
Ki beling	*Sericocalyx crispus,* Acanthaceae				+	
Ki koneng	*Arcangelicia flava,* Menispermaceae	+		+		
Ki korejat	*Laurentia longiflora,* Campanulaceae			+		
Ki rapet	*Ficus villosa,* Moraceae		+			+
Ki saat	*Artemisia vulgaris,* Asteraceae					+
Ki senok	*Abelmoschus manihot,* Malvaceae				+	
Ki tajam	*Clinacanthus nutans,* Acanthaceae	+		+		
Ki urat	*Plantago major,* Plantaginaceae		+	+		+
Kirinyuh pait	*Eupatorium inulifolium,* Asteraceae	+				
Kumis kucing	*Ortosiphon aristatus,* Lamiaceae	+	+	+	+	+
Kunci	*Boesenbergia rotunda,* Zingiberaceae		+	+		+

Kunyit	*Curcuma longa,* Zingiberaceae			+		
Lampuyung	*Symphytum officinale,* Boraginaceae	+	+			+
Lempuyang	*Zingiber aromaticum,* Zingiberaceae				+	
Lengkuas	*Alpinia galanga,* Zingiberaceae			+		
Monyenyen	*Laurentia longiflora,* Campanulaceae			+		
nanangkaan	*Euphorbia hirta,* Euphorbiaceae				+	
Panglay	*Zingiber ottensii,* Zingiberaceae	+		+		
Pecah beling	*Strobilanthes crispus,* Acanthaceae	+		+		
Pungpulutan	*Urena lobata,* Malvaceae			+		
Putat	*Planchonia valida,* Lecythidaceae			+		
Rasamala	*Altingia excelsa,* Hamamelidaceae			+		
Remek daging	*Excoecaria cochinchinensis,* Euphorbiaceae	+		+		
Rendeu	*Staurogyne elongata,* Acanthaceae		+			+
Sambiloto	*Andrographis paniculata,* Acanthaceae			+		
Sanagori	*Sida rhobifolia,* Malvaceae		+	+		+
Sawi langit	*Vernonia cinerea,* Asteraceae				+	
Seureuh	*Cymbopogon citratus,* Poaceae	+	+			+
Sintrong	*Erechites valerianifolia,* Asteraceae			+	+	
Tapakliman	*Pseudoelephanthopus spicatus,* Asteraceae			+		
Tawulu	*Premna obongata,* Lamiaceae		+			+
Terong kori	*Solanum aculeatissimum,* Solanaceae			+		
Walang	*Wedelia biflora,* Asteraceae	+	+	+		+