

Similarity in the Use of Medicinal Plants by Traditional Medical Practitioners (TMPs) from Three Watershed Areas in Cebu Island, Central Philippines

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Received 23 October 2012; Revised 13 November 2012; Accepted 16 November 2012

Abstract

Semi-structured interviews of traditional medical practitioners (TMPs) were conducted to assess if three adjoining watershed areas (i.e., Mananga River Watershed Forest Reserve, Buhisan Watershed Forest Reserve, and Kotkot-Lusaran Watershed Forest Reserve) in Cebu Island, Central Philippines, have similar ethnobotanical practices. Almost all variables such as plant parts used, herbal preparations, and different indications for which the medicinal plants are used showed similar responses suggesting the high degree of social connectivity among TMPs within the three watersheds. It was noted that the indigenous knowledge on plant use as medicine is still very much alive among the local communities.

Keywords: Cebu Island; Central Philippines; ethnobotany; traditional medical practitioners; watershed reserves

Abbreviations:

CCPL – Central Cebu Protected Landscape

DENR – Department of Environment and Natural Resources

MCWD – Metro Cebu Water District

PAWB – Protected Area Wildlife Bureau

TMPs – traditional medical practitioners

Introduction

The use of plants for traditional medicine is a common practice in all indigenous societies in the world. In the Philippines, folk knowledge on herbal remedies is passed on from one generation to the next through oral communication. Mankind has been using plants as therapeutic agents for thousands of years and continues to rely on them as a remedy for both human and animal healthcare systems (Offiah et al., 2011; Ahsan et al., 2009). Traditional medicine is affordable, easily accessible, and efficacious (Olowokudejo et al., 2008). The Philippines is home to a diversity of plants that can be tapped as herbal remedies. The archipelago has more than 12,000 species of plants, 1500 of which are used by traditional herbalists (dela Cruz and Ramos, 2006). Many plants have developed highly sophisticated defense systems allowing them to produce and store a complex array of chemical compounds; some of these active compounds have been proven to treat a wide spectrum of medicinal conditions (Lirio et al., 1998). Over time, some medicinal plants have been used in the same manner by both the indigenous people and city dwellers, indicating that their expected therapeutic benefits are based on sound pharmacological implications (Prigge et al., 2005).

It is widely known that indigenous peoples have known the healing properties of several herbs for generations (dela Cruz and Ramos, 2006). Conversely, the archipelagic nature of the Philippines may have led to a diversity of indigenous knowledge, cultural practices, and herbal preparations. For example, Fernando (1996) documented the plants used by the Aetas living inside the Subic Bay Forest Reserve in Zambales, Northern Philippines. Hernandez et al. (2011) reported the use of several plants by Filipinos for treating diabetes, weakness, menorrhagia, headache, toothache, and rheumatism. Langenberger et al. (2009) interviewed Filipino lowland farmers in Leyte, Eastern Visayas, who reportedly utilized 122 native plant species for 77 purposes, of which 80 species are used for medicinal purposes. Another ethnobotanical study on the modes of preparation and the implications of medicinal plant root species was conducted in Argao, Naga, San Fernando, and San Remigio in Cebu Island, Central Philippines (Miano et al., 2011). Additionally, Inocian (2011) also conducted an ethnobotanical study among the locals of Campo Siete, a portion of the Mananga River Watershed in Cebu Island, where he categorized the plants according to their uses, such as food, medicine, cash crops, construction, and fuel.

With rapid urbanization and development that Cebu Island is experiencing at present, there is an urgent need to conduct ethnobotanical surveys in various watershed areas, studies that focus on medicinal plants, plant parts used by traditional medical practitioners (TMPs), diseases treated, and modes of preparation and administration. There is also a need to determine if there are similarities in the practices of communities in the area.

There are three identified watersheds in Cebu, namely, the Buhisan Watershed Forest Reserve, Kotkot-Lusaran Watershed Forest Reserve, and Mananga River Watershed Forest Reserve. The watershed areas are habitats to many of important endemic and indigenous species of flora. For example, Quimio (2006) recorded 47 species of large trees, 71 medium trees, 118 small trees, 2 straggler figs, 7 shrubs, 2 palms, 74 erect herbaceous plants, 21 woody lianas, 32 grasses, 22 ferns, and 1 moss at the Mananga River and Kotkot-Lusaran Watershed.

Because of geographical barriers, one of the concerns of this study is to establish if there is variation on the indigenous knowledge on plant use among the local communities. As noted by Salas et al. (2005), indigenous people living in the three watershed areas are separated by rugged mountainous terrains and mountain ridges. A mountain range, which is 720 m above sea level, separate the Mananga River Watershed from the Kotkot-Lusaran Watershed (Cebu City Government, 2010). On the other hand, it is also possible that the creative use of medicinal plants does not vary much due to interactions among the inhabitants brought about by developments in transportation and communication. To ascertain this hypothesis, we conducted a survey on the plants frequently used in folk medicine by interviewing indigenous inhabitants on the medicinal use of local plants, plant parts harvested, conditions treated, and modes of herbal preparation and administration.

Materials and Methods

Inputs

Presidential Proclamation 441 consolidated the 5 Protected Areas of Central Cebu (i.e., Mananga River Watershed Forest Reserve, Kotkot-Lusaran Watershed Forest Reserve, Central Cebu National Park, Sudlon National Park, and Buhisan Watershed Forest Reserve) into the Central Cebu Protected Landscape (CCPL) on August 2003. The total land area is 29,060 ha, with 61 *barangays* (villages) located within the protected areas (Atega, 2009).

Mananga River Watershed Forest Reserve is situated in Minglanilla, which is approximately 15 km (9.3 miles) south of Metro Cebu. It is bounded on the southwest by the town of Naga, on the northwest by Toledo City, on the northeast by Talisay City, and on the southeast by the Bohol Strait. It has a land area of approximately 6823 ha and is also known as the “sugar capital” of the south. Buhisan Watershed Forest Reserve is situated in Barangay Buhisan, Cebu City, and is operated and maintained by the Metro Cebu Water District (MCWD). It has a land area of approximately 630.89 ha. Kotkot-Lusaran Watershed Forest Reserve is located in Balamban and partially covered by the Central Cebu National Park and extends to Liloan; it has a total land area of 14,121 ha (Figure 1).

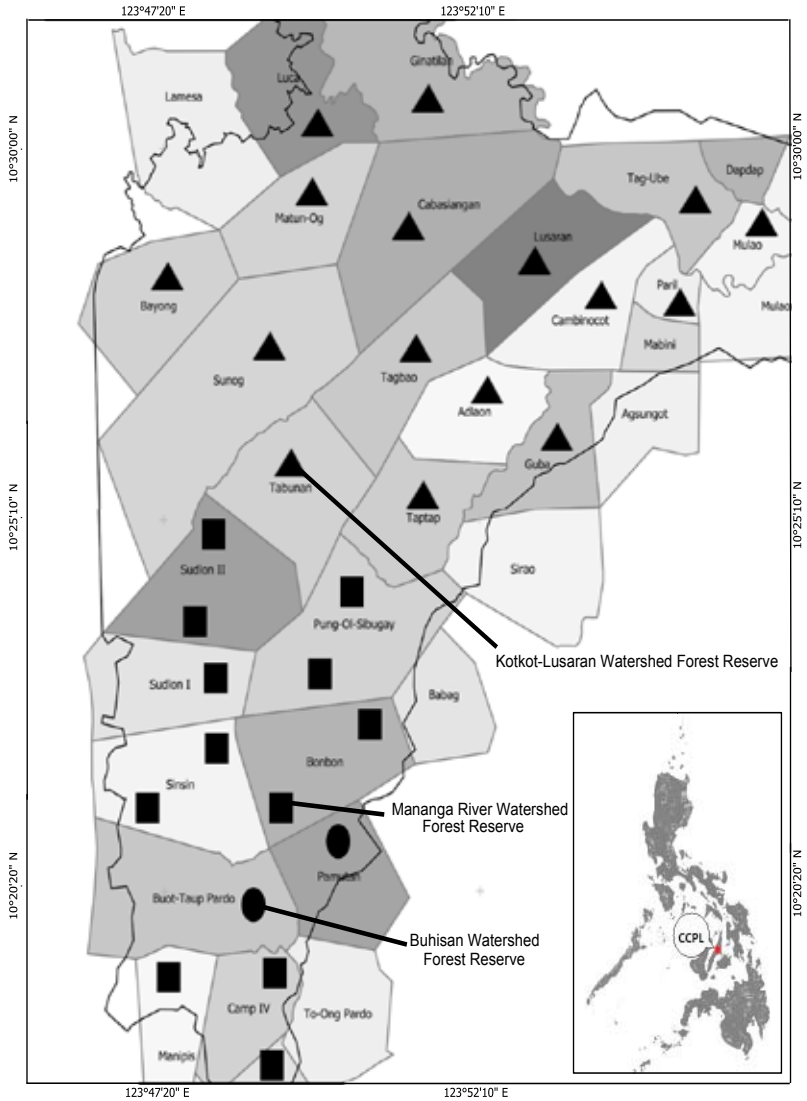


Figure 1. Map of Central Cebu Protected Landscape (CCPL) where the three watershed areas and their corresponding *barangays* are located (Source: Protected Area Wildlife Bureau [PAWB], Department of Environment and Natural Resources [DENR], Region 7)

Ethnobotanical Survey

The study was carried out from December 2011 to August 2012. The local residents and traditional medical practitioners (TMPs) over forty years of age and knowledgeable about medicinal plants in the study area were interviewed using semi-structured questionnaires and open-ended conversations. We noted that individuals above forty years old were the elderly residents who were more familiar with their environment, having stayed in the area for a long time. Other ethnobotanical studies conducted by Yirga (2010) and González et al. (2010) also used this age bracket (i.e., above forty years old) as criterion for choosing interviewees. There were 83 interviewees in total: 26 in Mananga River Watershed Forest Reserve, 35 in Buhisan Watershed Forest Reserve, and 22 in Kotkot-Lusaran Watershed Forest Reserve. The difference in the number of interviewees for each watershed was due to the difficulty in finding respondents that fit the specified age bracket. Similar to the ethnobotanical survey done by Gonzalez et al. (2010) and Focho et al. (2009), the informants living in the watershed areas were also asked to name the medicinal plants they knew and describe the medicinal use, the plant parts used, diseases treated, and modes of preparation and administration of the respective plant species. Samples were collected, and the medicinal plants were later identified and categorized according to their scientific name, family, vernacular name, and utilization. The taxonomic works of De Padua (1977), Quisumbing (1978), and Frantisek (1991) were used as general references.

The Pearson's chi-square test for independence was used to determine if the three watersheds share common knowledge in terms of plant parts used, method of preparation, and indication. The Pearson's chi-square test for independence tests the association between two categorical variables and is used for frequency data, i.e., the distribution of the frequencies across various categories (Yates et al., 1999)

Results and Discussion

Forty-nine species belonging to 38 families of plants were used by TMPs in the three watershed areas (Table 1). There were three families with the most number of species identified, which were Euphorbiaceae (3 species), Lamiaceae (3), and Fabaceae (3). The residents and TMPs obtain most species from around the villages, home gardens, and community grounds. We compared the current list of species with that from a study conducted in Malaysia. Of the 91 species used by the indigenous Murut people in Sabah, Malaysia (Kulip, 2003), only 6 species (*Bixa orelluna*, *Cymbopogon citratus*, *Mangifera indica*, *Manihot esculenta*, *Psidium guajava*, and *Garcinia mangostana*) were also found in Cebu Island. This suggests that floral composition in neighboring