Status and Prospects of the Utilization of Medicinal Plants in the Philippines

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Introduction

Being a plant-species rich country, the Philippines had developed a long tradition of herbal medicine. This practice is still very much alive today as evidenced by the strong presence of traditional healers, locally known as "herbolarios" or "*albularyo*", in the many local communities. It is still a common practice especially among rural folks to grow medicinal plants in their backyard and be familiar with household herbal remedies to cure common sickness. Herbal preparations are usually made from extracts of the roots, barks, leaves, seeds, flowers or fruit of plants with medicinal properties. In general, it could be said that alternative herbal medicines remain indispensable in meeting basic health needs of the Filipinos especially in the household levels.

Local researchers have been independently working and studying on indigenous knowledge of herbal medicines until their efforts were made collective by the government under the National Integrated Research Program on Medicinal Plants (NIRPROMP). This paved the way for more scientific studies on traditional medicinal plants. Studies documented traditional medicinal plants and identified 1,300 plants and herbs with medicinal properties, around 100 of which are commonly being used. Since then, the Philippine government encouraged the use of a number of medicinal plant preparations starting the integration of traditional and alternative health medicine into the national health-care delivery system.

To this date, ten medicinal plants have been clinically tested to be safe and effective namely: ampalaya (*Momordica charantiai*), bayabas (*Psidium guajava*), bawang (*Allium sativum*), niyug-niyogan (*Quisqualis indica*), ulasimang bato (*Peperomia pellucida*), lagundi (*Vitex negundo* L.), akapulko (*Cassia alata* L.), sambong (*Blumea balsamifera* (L.) DC.), yerba buena (*Mentha cordifolia* Opiz.) and tsaang-gubat (*Ehretia micropylla*). The last five have been approved as medicinal drugs (de Jesus, 2005). The government established herbal processing plants around the country which made possible the successful commercialization of these drugs. Furthermore, there are now at least two private pharmaceutical companies engaged in the manufacturing of these medicinal drugs. Aside from the ten clinically tested medicinal plants, avocado (*Persia amercana*), papaya (*Carica papaya*), cucumber (*Cucumis sativus*) and banaba (*Lagerstroemi especiosa*) are commonly being used as major ingredients in many health care and beauty products.

At present, scientific validation of newly identified medicinal plants is being actively pursued by both government and non governmental agencies. As there are still more medicinal plants not yet fully studied, there is an existing collaborative effort among research institutions to document and explore local and indigenous knowledge on
medicinal plants. Although still a long way to go, herbal medicine research in the Philippines continues to thrive and will hopefully result to the development of more affordable yet safe and effective medicines for Filipinos.

Medicinal Plants in the Philippines

In 1977, the National Integrated Research Program on Medicinal Plants (NIRPROMP) in the Philippines was established under the supervision of the Philippine Council for Health Research and Development of the Department of Science and Technology (PCHRD-DOST). This research body aimed to systematize the study of medicinal plants in the Philippines with an end goal of providing safe, effective and affordable pharmaceutical products derived from commonly available plants. In attaining this goal, the agency wielded a strong collaborative research involvement with other major institutions in the country like the University of the Philippines Colleges of Agriculture, Science, Medicine, and Pharmacy; the National Institute of Science and Technology; and the Departments of Health, Education, Culture, and Sports, and

Agriculture. The creation of NIRPROMP has provided scientific groundwork for the development of herbal medicines in the country.

In reality, however, NIRPROMP is just an embodiment of an institutionalized body of knowledge based on what has been the common practice of the Filipino ancestors many centuries ago. The traditional community doctor's knowledge on the utilization of plants for medicinal purposes has been purified from generations of trial and error. Utilization of plants for medicinal purposes is already an established tradition handed down from generation to generation. This is why it is almost facetious to say that Filipinos should be trained or taught of how to utilize plants to cure common ailments and sickness.

Fuelled by the "back to nature" perspective, anything natural is regarded as equivalent to safe. Generally, it is believed that botanical ingredients are easier to integrate biologically with less risk of adverse effects. Thus, increasing number of health conscious individuals are shifting to the use of botanically derived products. In fact, according to the studies conducted by the Food and Agriculture Organization (2002) more than 80% of the Philippine population uses herbal medicine. This may be partly due to the escalating costs of health care products, but for the most part it is due to the increasing health consciousness among the people.

In the Philippines, medicinal plants have become increasingly popular. The same trend was observed in most part of the world. There has been a growing demand on plant based medicines and home remedies for the maintenance of primary health care and promotion of well being. Reports by the Department of Trade and Industry showed that an astonishing increase of 63.24% in the local market of botanically derived products from year 2003 ($2.7M) to 2004 ($4.4M) was observed. Also, sale of "sambong" and "lagundi" herbal medicinal drugs boost up when they were first made available to the public.

Nowadays, Philippines has a thriving market of herbal products, the coverage of which included herbal remedies and medicinal plant products; natural and herbal personal-care products; essential oils; natural and herbal food supplements, other products derived from natural and organic resources; natural and fitness and therapeutic aids and accessories; aromatherapy; and other natural health services.

Major Medicinal Crops in the Philippines

There are a number of medicinal plants being used in the Philippines especially in the indigenous communities. But among these available plants, the major medicinal crops are the ten clinically-tested plants (Table 1) approved by NIRPROMP. These plants have been scientifically validating and have passed safety and efficacy tests in accordance with the standards set by the World Health Organization (WHO). Preparation and use of such medicinal plant products are now easily done at home, thus providing safe, effective and cost effective alternative in treating common illnesses and diseases.

The common practices in the production management of medicinal plants include site preparation, propagation, hardening, transplanting and maintenance operation such as weeding, pruning, fertilization and green manuring. Although cultural management and practices for traditional crops and medicinal plants are almost similar, the latter are more sensitive. Growing and processing of medicinal plants require a compliance with a set of guidelines laid down by the WHO and NIRPROMP. Utmost care must be observed to ensure that the raw materials for manufacturing dosage forms would not contain any pesticide residue, aflatoxin or high amount of heavy metals.

In the household level, the most commonly used methods of preparation of herbal medicine are through decoction and infusion. This is usually done by boiling one part of fresh chopped parts of the plant in two parts of water and simmered in low fire for 15 minutes. Capsule preparation is also possible.

Future Directions and Prospects

Scientific validation of the medicinal use of certain plants adheres to the strictest standards of medical research which takes a tedious and rigorous process of analysis and safety and efficacy testing. It requires collaborative efforts from carious technical fields of agriculture, biochemistry, pharmacology, toxicology and genetics. Different agencies and institutions are necessarily involved undertaking research endeavors in medicinal plants.

At present, new plants are being identified and subjected to various pharmacologic/toxicologic tests and bioassay procedures. Table 2 shows the proposed next ten priority medicinal plants that were identified during a seminar workshop on medicinal plants held in 2003. Preclinical studies of new plants possibly effective for malaria, dengue fever and tuberculosis are also currently underway.

Table 1. The 10 Clinically-Tested Medicinal Plants in the Philippines.

Philippine Name	Scientific Name	English Name	Plant Description	Medicinal Use	Parts used	Mode of Preparation	Industrial Use	Active Ingredient
Akapulko	*Cassia alata* L.	Ringworm bush or shrub	• family *Leguminosae* • a 3-m tall shrub with thick branches • leaves have 8-20 pairs of oblong-elliptical leaflets • flowers are yellow with oblong sepals • seeds are quadrangular, flattened and shiny	Anti-fungal (for ringworm and athlete's foot)	Leaves	Decoction or ointment	A common ingredient in soaps, shampoos and lotions in the Philippines	Chryso-phanic acid
Ampalaya (Makiling variety)	*Momordica charantia*	Bitter gourd or bitter melon	• family *Cucurbitaceae* • a slender, climbing annual vine with long-stalked leaves and yellow flowers borne in the leaf axils • the fruit looks like a warty gourd, usually oblong and resembling a cucumber; emerald green when young and turns to orange-yellow when ripe	Anti-diabetic for mild non-insulin dependent (diabetes mellitus)	Leaf tops	Decoction	Ampalaya tea, medicinal capsules and tablets	Charantin
Bawang	*Allium sativum*	Garlic	• family *Liliaceae* • the leaves are long, narrow and flat-like grass • the bulb is of a compound nature, consisting of numerous bulblets called "cloves"	For lowering blood cholesterol	Fresh cloves	Sautéd or grilled garlic cloves		Allicin
Bayabas (native variety)	*Psidium guajava* L.	Guava	• family *Myrtaceae* • a fruit tree which is 4-m tall with smooth, thin, copper-colored bark that flakes off • the leaves, aromatic when crushed, are evergreen, opposite, short-	Antiseptic for small wounds, swollen gums and dental carries	Leaves	Decoction		Quercetin

			petioled, oval or oblong-elliptic • fruits may be round or ovoid and have 4-5 protruding floral remnants (sepals) at the apex					
Lagundi	*Vitex negundo* L.	Five-leaved chaste tree	• family *Verbenaceae* • a shrub, about 5 meters in height • the leaves are arranged like the fingers of the hand	Expectorant and broncho-dilator	Leaves	Decoction	Lagundi tea, medicinal capsules, tablets and syrups	Luteolin
Niyug-niyogan	*Quisqualis indica* L.	Chinese honey-suckle	• family *Combretaceae* • a wood climber that grows up to 8 m • leaves are opposite, 7-15 cm long • inflorescence terminal or axillary clusters of fragrant, tubular, showy flowers varying in color from white to pink to red • fruit is ellipsoidal, long, with 5 prominent wings lengthwise; fruit when mature tastes like almonds	Anthelmintic against *Ascaris*	Fruit (kernel)	None		Quisqualic acid
Sambong	*Blumea balsamifera* (L.) DC.	Blumea camphor	• family *Compositae* • a shrubby perennial herb to 3-m tall with hairy stems • leaves are alternate, elliptic in outline, 22 cm x 6 cm, green above and light green below with serrated margin	Diuretic and anti-urolithiasis	Leaves	Decoction	Sambong tea, medicinal capsules and tablets	camphor
Ulasimang bato	*Peperomia pellucida*	Peperomia	• family *Piperaceae* • small fleshy herb that grows up to 30 cm tall • stem initially erect, rooting at nodes • leaves are rounded and pointed at the tip, spirally arranged, simple and membranous when dry	Lowers uric acid in blood, for gout and rheumatic pains	Aerial plant parts	Decoction or salad		

Yerba buena	*Mentha cordifolia* Opiz.	Pepper-mint	• family *Labitae* • an extremely aromatic perennial herb with reddish stems • spreads across the ground, often rooting, up to 3 ft in length with short branches • leaves grow on opposite sides of the long stem and are bright green that is tinted with purple, heart-shaped and have blunt teeth along the margin • flowers are tiny, white to pink tinged tube and appear singly on stalks that originate from the leaf axis	Analgesic (for headaches, toothaches and pains caused by arthritis)	Leaves	Decoction	Yerba buena tea and medicinal tablets	Menthol

Table 2. The Proposed Next Ten Priority Medicinal Plants.

Philippine Name	Scientific Name	English Name	Uses
Gugo	*Entada phaseoloides*	St. Thomas bean	Personal care, anthelmintic
Lawat	*Litsea glutinosa*	Indian Laurel	Skin and hair nourisher and moisturizer, laxative
Takip-kuhol	*Centella asiatica*	Gotu kola	Rejuvenator, germicide
Siling labuyo	*Capsicum frutescens*	Chili pepper	Arthritis, biopesticide
Luyang dilaw	*Curcuma longa L.*	Turmeric	For skin diseases
Ilang-ilang	*Cananga odorata*	Ylang-ylang	Fixative, fragrance
Kabling	*Pogostemon cablin*	Patchouli	Fixative, antiseptic, hair grower, aromatheraphy
Neem	*Azadirachta indica*	Neem	Biopesticide, insect repellant, biospray
Tanglad	*Andropogon citrates*	Lemon grass	Biopesticide, culinary use (spice), fragrance, condiment
Paminta	*Piper nigrum*	Black pepper	Spice, condiment

Source: Seminar-Workshop on the State of the Art of Medicinal Plant Research and Business Opportunities, UP Los Baños, March 31, 2003.

Apart from NIRPROMP, many other institutions are now taking interest and active part in herbal medicine research. Pharmaceutical dosage forms are continuously being prepared from various medicinal plant materials.

Summary

Utilization of herbal medicine has been an intrinsic part of Philippine culture for many centuries. In spite of tremendous development in the field of modern medicine, traditional and alternative medicine will continue to flourish and take an important role in meeting the basic health needs of the people.

The National Integrated Research Program on Medicinal Plants (NIRPROMP), the lead government institution for herbal medicinal research had already validated ten medicinal plants and is currently studying new batch of medicinal plants. Five of the ten clinically-tested medicinal plants have been elevated to herbal medicinal drugs that are now being commercially manufactured in the different parts of the country.

Research on medicinal plants takes longer time as the nature of medical research dictates it to be. It must adhere to the internationally accepted standards of medical research as set primarily by the World Health Organization. In the past years, a vibrant herbal medicinal research in the Philippines was observed making alternative medicine an effective health delivery system to the people.

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