

HERBAL MEDICINE

Ranjith Dharmaratne

Associate Research Professor, IFS

Plants were used in medicine since the beginning of the earliest recorded dates of man, mainly due to easy accessibility. As there was no organized system of medicine at that time, plants were the first to be tried out in time of sickness. In this way our ancestors experimented with the plants in their surroundings as cure diseases. However, this trial and error method gradually paved the way for invention of worthwhile remedies which have flourished to the modern medicine.

A large number of therapeutically potential medicinal plants were documented in early stages of our civilization, in particular in India, Mesopotamia, Egypt and China. The earliest documented medicinal plant is believed to be Ma-Hung, which was first described 5000 years ago by the Chinese emperor Shen Hung as a remedy for cough and for cardiac stimulation. At present, the active compound Ephedrine isolated from Ma-Huang is used for treating asthma. Another example from old Chinese scripts is use of *Artemisia annua* for malaria and the active compound of this plant Artemisinin is now using as an effective anti-malarial drug. In Mahawamsa and Deepawamsa existence of herbal medical practice in ancient Sri Lanka is well documented, and the medical wonders performed by king Buddhadasa with herbs are described.

It is reported that during the middle ages (11-18th century), people believed that nature herself provides a cure for every disease. Further they believed that the signature of a disease was impressed upon to the plant which could cure that particular disease. Believing above, they used the serpent shape *Rauwolfia serpentina* (Ekaweriya) root commonly known as snake-root to treat snake bites, plants with red flowers to prevent bleeding and plants with yellow flowers to treat jaundice (yellow fever). They thought that the wrinkled kernel of nutmeg resembles the brain and used to treat mental diseases. Interestingly nutmeg contains a number of hallucinating agents definitely effecting the brain, but in a negative way.

In Sri Lanka too we have our own system of herbal medicine developed by our ancestors. As Sri Lanka had a very close relationship with India for thousands of years, we have inherited a vast knowledge on herbal remedies from India too. Ayurveda is one of the very important practices we have inherited from our neighbor. The Ayurveda is claimed to be originated from the Erusies from ancient India, according to the literature. However, most of the Ayurvedic preparations are herbal origin, and over 2000 medicinal plants are used. Therefore, we can consider it as a system of herbal medicine.

A survey conducted by the World Health Organization has revealed that nearly 70% of Sri Lankan population are still depend on the traditional system of medicine for their basic health care. Traditional system of medicine can be divided namely as Ayurveda, Deshiya chikista, Sidda and Unani. Plants and herbal preparations are mainly used in Ayurveda and Deshiya Chikista.

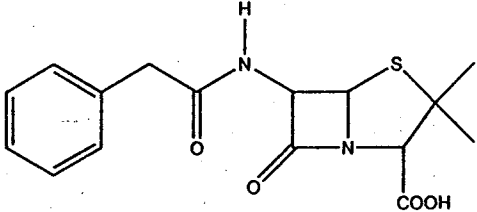
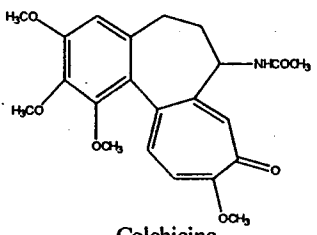
According to scientific research, the medicinal properties of above plant or plant preparations are due to the compounds which are present in the plants, and we call them natural products. They can be divided in to two major classes as primary and secondary metabolites.

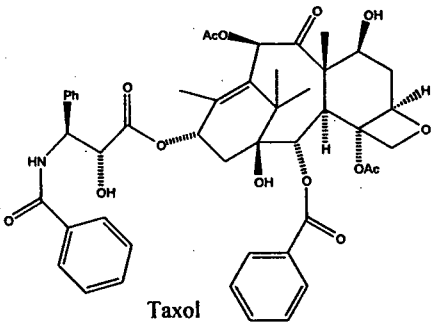
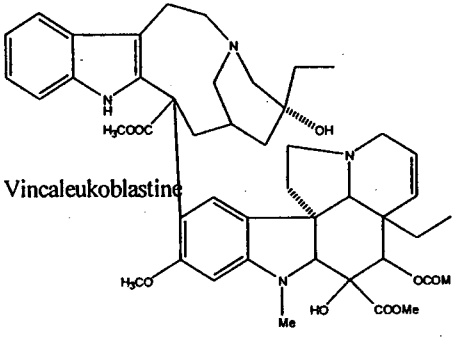
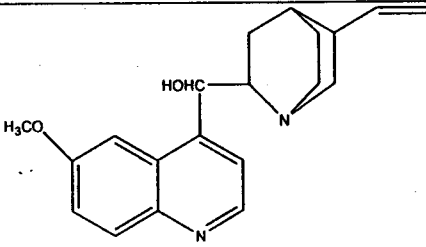
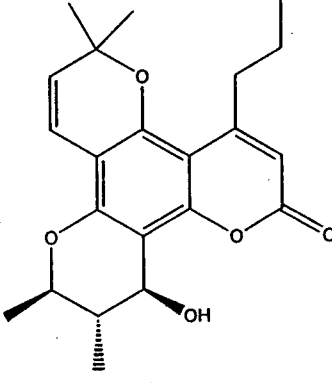
(a) Primary metabolites are macromolecules such as cellulose, carbohydrates, proteins and lipids.

(b) Secondary metabolites are relatively smaller in size and some of them show biological activities such as antibiotic, antiviral, anticancer, anti-malarial, anti-inflammatory etc. In chemotaxonomy, these secondary metabolites can be used in classification of plants. Above secondary metabolites belong to different classes of compounds such as terpenoids, steroids, alkaloids, xanthenes, coumarins etc.

Herbal medicine has paved the way to isolate considerable number of very important drugs which are used in Western Medicine today to cure deadly diseases such as cancer and leukemia. An anti-HIV natural product isolated from a tropical plant *Calophyllum lanigirum* is in clinical trials with the hope of treating Aids. Following chart gives some of the compounds isolated from medicinal plants which are currently used in medicine and or in clinical trials. In Western Medicine, nearly 60% of the drugs are plant originated, thanks to Herbal Medicine.

Some Biologically active Natural Products and their activity

Source	Activity	Structure
<i>Penicillium notatum</i>	Antibacterial (antibiotic)	 <p>Penicillin</p>
<i>Colchicum autumnale</i>	Anti-inflammatory	 <p>Colchicine</p>

Source	Activity	Structure
<i>Taxus brevifolia</i>	Anticancer	 <p style="text-align: center;">Taxol</p>
<i>Catharanthus roseus</i>	Antileukaemic	 <p style="text-align: center;">Vincalukoblastine</p>
<i>Cinchona succirubra</i>	Antimalarial	 <p style="text-align: center;">Quinine</p>
<i>Calophyllum lanigirum</i>	Anti HIV (in clinical trials)	 <p style="text-align: center;">Calanolide</p>