**Bio-prospecting of medicinal plants in Sri Lanka for therapeutic use**

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A plant gets a medicinal value when it is has a positive effect on wellbeing of a man. Almost all plants in the world have, at least to a certain extent, some medicinal value. However some plants are specifically used for many ailments and are generally known as "Medicinal plants". It is known that nearly 1500 species of medicinal plants have been identified in the world and 189 of these are endemic to Sri Lanka. All the plant parts; roots, bark, tubers, leaves, flowers, fruits and seeds are used in medicine, both western and indigenous medicine (Ayurveda, Siddha and Unani).

Medicinal plants are distributed more in tropical rain forests and many illicit narcotic drugs are now being considered as having a medicinal value, i.e. " *Medical Marijuana" The emerging science of applying marijuana's beneficial side effects to an individual patient's needs while minimizing the undesirable side effects on the patient's life that was* practicing in pre-historic era.

"Bio-prospecting" in general is making use of live plants and animal, from which medicinal drugs and other commercially valuable compounds could be obtained. Bio-prospecting is the process of discovery and commercialization of new products based on biological resources. Despite indigenous knowledge being intuitively helpful, bio-prospecting has only recently begun to incorporate such knowledge in focusing screening efforts for bioactive compounds (https://en.wikipedia.org/wiki/Bioprospecting).

Bio-prospecting technologies have added value to medicinal plants as they could be commercially grown, chemical compound/s isolated and genetically engineered to manufacture products for wellbeing of mankind.

In the past the plants were collected from nature and such continuous practice has made many plants "endangered" threaten to be totally lost from the country. IUCN has released a "red list" identifying endangered species in many countries including Sri Lanka. The tropical rain forest, Sinhalaja forest, is a "hot spot" for medicinal plants.

*In vitro* tissue culture technology, especially, meristem/shoot-tip culture, nodal culture, embryo (zygotic & somatic) and callus culture have been used to produce planting material required for commercial scale cultivations for bio prospecting of them. Cell cultures with bioreactors are used to produce the medicinally valuable product commercially avoiding cultivations and due to many advantages bioreactors are preferred for multitude productions. Very many medicinal plant species, i.e. *Munronia pinnata*, *Aloe vera,* are micro-propagated in Sri Lanka through *in vitro* tissue culture technology. When planting materials are needed within short time period, nodal culture (single or multiple) is the most suitable *in vitro* technology. The Ayurveda Research institute (BMARI) in Sri Lanka while maintaining *in vivo* collection also develop *in vitro* technology to assist cultivations. However, i*n vitro* technologies are yet to harness in Sri Lanka unlike in India where bio prospecting of medicinal plants are far ahead. Currently Sri Lanka too has given prominence in bio prospecting of medicinal plants.


https://en.wikipedia.org/wiki/Bioprospecting

https://en.wikipedia.org/wiki/Medicinal_plants

http://www.medicinehunter.com/medicinal-plants

https://en.wikipedia.org/wiki/IUCN_Red_List

https://www.iucn.org/resources/conservation-tools/iucn-red-list-threatened-species

Medicinal Plants used in Ceylon by D M A Jayaweera with taxonomic updating by Lilani K Senaratne. Part 1-5. 2006. National Science Foundation, Sri Lanka.


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