Evaluation of antioxidant activities of various extracts of perennating organs (Tubers, Rhizomes and Corms) of some monsoon perennial plants of Western Ghats of Maharashtra

Abstract

The Western Ghats of India are known to be a major biological hotspot that supports plant diversity and endemism. It has been estimated that 60% of the World’s population rely on traditional medicines for their health care needs. In 1976 the World Health Assembly drew attention to the reserve constituted by those practicing traditional medicine. A year later it urged member states to utilize their traditional systems of medicine, and in 1978 highlighted the importance of medicinal plants in the health care systems of many developing countries. Despite the dramatic advances and advantages of conventional medicine, it is clear that a role has been identified for herbal medicine. In the last 50 years or so, humans have relied on plants to treat all manner of illnesses, from minor problems such as coughs and colds to life-threatening diseases such as tuberculosis and malaria. Herbal medicine is presently experiencing a dramatic renaissance in Western countries, partly because of renewed interest in this field, gaining popularity worldwide as alternative and complementary therapies. The medicines for internal use prepared in the traditional manner involve simple methods such as hot- or cold-water extraction, expression of juice after crushing, powdering of dried material, formulation of powder into pastes via such a vehicle as water, oil or honey, and even fermentation after adding a sugar source.

In the present research program, we have collected the genera and species of endemic plants from Western Ghats of Maharashtra, India. The organs of plants were collected, shadow dried and ground for further analysis. The soxhlet extraction method has been implemented in aqueous as well as organic solvents. The crude extracts of the plants were proposed for phytochemical screening and mineral analysis with pharmacological evaluation. The biological evaluation involved the antioxidant activity, anti microbial activity against clinically isolated microbial strains. Phytochemical screening indicated that, plants are rich in a variety of secondary metabolites such as carbohydrates, glycosides, alkaloids, vitamin C, vitamin E, flavonoids, phenols, and saponins. A high-throughput micro-scaled method has been developed which enables digestion of small quantities of plant samples for subsequent elemental profiling by
Induced Coupled Plasma Spectrometry. We employed reverse phase HPLC-analytical tool for qualitative estimation of Vitamin E, in which HPLC has been coupled with UV detector. The crude extracts of the following plants were studied extensively for phytochemical screening and mineral analysis with pharmacological evaluation.

1. Euphorbiaceae: *Euphorbia fusiformis*
2. Orchidaceae: *Peristylus densus.*
   *Habenaria longicorniculata*
3. Zingiberaceae: *Curcuma pseudomontana*
   *Caemferia scaposa.*
   *Zingiber cernuum*
4. Amarllidaceae: *Crinum woodrowii*
5. Taccaceae: *Tacca leontopetaloides.*
   *Drimia indica.*
7. Araceae: *Arisaema tortusum.*
   *Arisaema murrRAYi.*
   *Typonium venosum.*
   *Amorphophyllus konkanensis*
   *Colocasia esculenta.*