ABSTRACT

Essential oils have high industrial, economic and therapeutic values. Keeping the abundant availability of aroma and medicinal plants still to be explored for their importance, the present study has been undertaken to carry out phytochemical and pharmacological examination of selected plants with a focus on essential oils and the solvent extracts of plants.

In the present study, we have carried out phytochemical and pharmacological examination of five aroma plants, namely, *Nardostachys jatamansi* DC, *Valeriana wallichi* DC, *Cyperus rotundus* L, *Nelumbo nucifera* Gaerth. (white and red) and *Polianthes tuberosa* L.

In the phytochemical study, we have carried out three extraction methods. a) hydrodistillation b) supercritical CO₂ extraction and c) solvent extraction. The roots of *Nardostachys jatamansi* DC, *Valeriana wallichi* DC and rhizomes of *Cyperus rotundus* L were subjected to hydrodistillation individually using a Clevenger apparatus for the extraction of oil and supercritical CO₂ extraction was performed for all the three plants by using a supercritical fluid extractor for extraction of the individual extracts at two different pressures 100 bar and 200 bar. The flowers of *Nelumbo nucifera* Gaerth. (white and red) and *Polianthes tuberosa* L were subjected to the solvent extraction method for extraction of the concretes which contained more of waxes. The concretes were converted into absolutes by removal of waxes from them by treatment with alcohol followed by filtration of the waxes. The chemical constituents of the isolated oil, supercritical fluid extracts, concretes and absolutes were determined by GC-MS analysis and the details are presented comparatively.

The pharmacological examination carried out for the oil, supercritical fluid extracts, concretes and absolutes include antimicrobial, anti-inflammatory and antioxidant activities by in vitro methods. The analgesic and CNS depressant activity assay was also carried out for the absolute of *Polianthes tuberosa* by in vivo methods.