

ABSTRACT

The present work is an endeavor to explore ethnopharmacological effects, like Antimicrobial, MIC, Antioxidant, Total phenolic contents, Anthelmintic and Crystallization activities of *Albizzia lebbeck* (Linn.) Benth., *Sagretia thea* (Osbeck) M.C. Johnston var. *brandrethiana* (Aitch.) Qaiser and Nazim, *Duhaldea cuspidata* (Wall ex DC.) Anderb. and *Vernonia elaeagnifolia* DC., ethnobotanically important, locally found plants of Punjab. The crude extracts of powdered plant material were obtained in polar and non-polar solvents, viz: Petroleum ether, chloroform, methanol and water. The physical and chemical properties of plant extracts were determined, i.e. Colour, Texture, chemical nature and percentage yield. The *Albizzia lebbeck* leaf extract in water showed maximum yield, i.e. 16.05% with reddish brown colour and powdery mass, among all extracts. The significant zone of inhibition were produced by the extracts against pathogenic bacterial and fungal strains, i.e. *E.coli*, *Pseudomonas aeruginosa*, *Staphylococcus saprophyticus*, *Staphylococcus aureus*, *Aspergillus parasiticus* and *Rhizopus aryeza*. The highest zone of inhibition was shown by *Duhaldea cuspidata* inflorescence extract in petroleum ether ($82.3 \pm 2.51a$) against *Aspergillus parasiticus*. The antioxidant potential of all plants extracts conducted by three assays, i.e. DPPH, Total antioxidant assay and Total phenolic contents, gave the values which were comparable with the standard antioxidants, i.e. BHT and α - Tocopherol. The *in vitro* anthelmintic activity of the all plant extracts was found much stronger than the standard medicine (Levamisole) except *Vernonia elaeagnifolia* in comparison to other plants in the present study. In crystallization activity crystals were obtained in *Albizzia lebbeck* stem and fruit with α - Sulpher S_8 formula, 256.48 formula weight with Orthrorhombic - F crystal system of stem and 32.06 formula weight with Monoclinic crystal system of fruit. In conclusion, the present study can safely recommend that the plants can be used to treat the various diseases of man & domestic animals. Moreover, it proved the accuracy and efficiency of the treatment of remedies traditionally by these local plants. This is an achievement that should be acknowledged by local people on the importance of local flora for its use as medicine.