

5.0 SUMMARY AND CONCLUSION

Nature has bestowed on us a very rich botanical wealth and a large number of diverse types of plants in different parts of the country. The vast majority of people still rely on their traditional materia medica for their everyday health care needs. One quarter of all medical preparations are formulations based on substances derived from plants or plant-derived synthetic analogs. Scientific evidence validates the pharmacological action of medicinal plants. It is believed that the use of plants for medicinal purposes has been associated with less frequent side effects. Today, biological research has shown that this practice of phytotherapy will remain with man for some time. In large number of cases, treatments with traditional medicines in the form of the plant extracts have been reported to give remarkably good results. It is generally accepted that free radicals play an important role in the development of tissue damage and pathological events in living organisms. If radical species are not completely scavenged by the endogenous systems, an important oxidative damage can occur on various macromolecules, hence dietary intake of antioxidant compounds become important. Plants contain natural substances that can promote health and alleviate illness.

A study was conducted to assess the phytochemical constituents, free radical scavenging effect, antioxidant potential, preliminary cytotoxic effect and antibacterial efficacy of the plant *Mukia maderaspatana* (L.). The plant parts such as leaves and stem were collected washed and air dried in room temperature. Dried leaves and stem were taken separately and powdered. The powdered leaves and stem were extracted with different solvents such as petroleum ether, ethanol, ethylacetate and water by Soxhlet and maceration method and used for the various analysis. The leaf and stem samples were analyzed qualitatively and quantitatively for various phytoconstituents. The content of carbohydrate and protein was also estimated in the plant. The free radical scavenging effect of the plants was evaluated in different extracts of leaf and stem by maceration method in terms of scavenging of DPPH

radical, ABTS radical, hydrogen peroxide, ferrous ion chelating activity and inhibition of superoxide generation, nitric oxide generation, hydroxyl ion generation and lipid peroxidation. In addition, the antioxidant potential of the plant was analyzed with different buffer extracts for the various enzymatic antioxidants (Superoxide dismutases, Catalase, Peroxidase, Glutathione peroxidase, Glutathione-s-transferase and Polyphenol oxidase) and nonenzymatic antioxidants (Ascorbic acid, α -tocopherol, Carotenoids, Reduced glutathione, Polyphenols and Flavonoids). The ethanolic Soxhlet extract of the plant samples were tested for preliminary cytotoxic effect against Brine shrimp (*Artemia salina*). The antibacterial activity was also determined for the samples extracted with different solvents by Soxhlet extraction method.

The findings of the present study are summarized below

The qualitative screening of phytochemicals revealed the presence of the phytochemicals namely alkaloids, anthroquinones, flavonoids, phenols, reducing sugars, saponins, phytosteroids and tannins. Glycosides and terpenoids were not detected in the leaf and stem. Quantitative estimations indicated that the amount of phenols, tannins, reducing sugars and chlorophyll was found to be increased in the leaf sample and the amount of alkaloids was high in the stem sample. Higher content of proteins was observed than the carbohydrate content in leaf and stem but the leaf was found to be the richest source of both carbohydrates and proteins. The results of free radical scavenging effect indicated that the leaf extracts scavenged the free radicals greatly than the stem samples. Varying degree of radical scavenging effect was observed with different solvents. Ethanolic and ethylacetate extracts scavenged the radicals to a greater extent than the other solvent. A decreased scavenging effect was seen in aqueous and petroleum ether extracts. The antioxidant potential of the plant revealed that the enzymatic antioxidants namely Catalase, Peroxidase, Glutathione peroxidase, and Polyphenol oxidase exhibited maximum activity in leaf sample and Superoxide dismutases, Glutathione-s-transferase showed pronounced