

***In Vitro* Evaluation and Identification of Medicinal Plants with Potent Anti-Aging Property Which Find Their Utility in Personal Care Products and Cosmetology**

Dr. Shalini B.U.

Department of Botany

Aging is defined as a gradual biological impairment of the normal function of the cells, tissues and organ system. Free radicals are unstable molecules which cause destructive reactions in the body by damaging cellular health and are the primary cause of accelerated aging. Oxidative stress, defined as “the imbalance between oxidants and antioxidants in favour of the oxidants, potentially leading to damage” has been suggested to be the cause of aging.

Antioxidants help keep the skin firm by boosting collagen which holds the cells of the skin together and gives its flexibility and strength. When free radicals attack cell membranes they may become hardened so that nutrients cannot penetrate the cells and this leads to leathery, wrinkled and sagging appearance of the skin, resulting in premature aging. Antioxidants protect collagen from free radicals by quenching them. Antioxidants are found in leafy vegetables, fruits, wine and chocolate. Antioxidants can also be found in certain vitamins such as vitamins A, C and E, and minerals such as zinc and selenium.

Herbs are natural and harmless by nature. Herbal treatments are usually in demand, because they have lower side effects and are cheaper. It has been found by many researchers that there is an inverse association between the mortality from age-related diseases and the consumption of plant products, which could be due to the presence of various natural antioxidant compounds, especially phenolics, which are the most reactive compounds. Anti-aging phytochemicals from herbs help stimulate blood circulation and increase the ability of the body to remove waste and absorb nutrients.

Herbs which possess anti-aging properties are used in various forms, such as medicine, oil, soap bar, ointment, cream or gel. There are many cosmetic companies and spas which use herbs as active ingredients in their anti-aging products. Herbal products can help the body maintain a youthful and healthy vigour. Anti-aging herbs are reckoned by many to be better and safer compared to surgery, injections of Botox or other cosmetic treatments.

The present study focused on the evaluation of the antioxidant activity of a few medicinal plants. The free radical scavenging potential of herbs was examined by evaluating their antioxidant activity through 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay. Among the 32 samples belonging to 23 species of medicinal plants studied, the aqueous extract of *Clerodendron fragrans* leaf (99.3%) showed the highest inhibition of DPPH radical, while the *Jacaranda mimosifolia* bark ((31.79%) showed the lowest inhibition. The ethanolic extract of *Mentha arvensis* leaf (98.0%) showed the maximum inhibition of DPPH radical, while the least inhibition was observed in *Cassia fistula* leaf (32.0%). The total phenolic content in the plant extracts was also evaluated. *Plumbago zeylanicum* showed the highest phenolic content. The results focused on the potential applications of herbs in cosmetic formulations for anti-aging.