

# Recent advances in treatment of skin disorders using herbal products

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Skin care is one aspect that is attaining growing importance because of the desire of glowing skin and prevalence of various dermatological disorders including hypopigmentation and hyperpigmentation among the people around the world (1-3). Pigmentation of the skin normally varies according to racial origin (Fitzpatrick phototypes) and the amount of sun exposure. Pigmentation disorders are often more troublesome in skin of colour. Melanin is responsible for imparting color to the skin and which is produced inside specialized organelles called melanosomes of melanocytes during the process of melanogenesis. Most common causes of skin hypo and hyperpigmentation are inflammation caused by sunlight, skin damage, allergic reactions due to food, chemicals and dyes, certain medications and several other genetic and climatic factors. With increased researches on how to treat those diseases and what can make the skin looks stunning, several treatment modes have been unleashed (4-7).

Accumulation of excess melanin and its distribution leads to hyperpigmentary diseases like melasma, post inflammatory hyperpigmentation, solar lentigos, ephelides, etc. Current treatment of hyperpigmentation includes removal of provoking factors, photoprotection, and active pigment reduction with either topical formulations or physical approaches including cosmetic camouflage, laser therapy, dermabrasion, chemical peel (8). Although there are multiple options available but some of them come under increasing scrutiny, underscoring the requirement of research into pathogenesis and treatment (9). As against the scenario with these treatment options, we have on the other side, herbal therapy which is nowadays gaining significance due to its low cost, ease to use and considered to be free from risk of handling as well as it hardly contaminates the environment. Hence, a dermatological formulation, including active ingredients of strictly natural origin, is a dream design to protect the skin against exogenous and endogenous harmful agents (10).

Hypopigmentation is a general term that refers to any form of decreased or absent skin pigmentation. It may be congenital or acquired, diffuse (generalized) or localized and may occur in isolation or be associated with a wide range of congenital or acquired disorders. Despite being a cosmetic disease, the disorder can be psychologically devastating and stigmatizing (11). The treatment of these disorders is diverse and depends on the cause of hypopigmentation. Treatment of hypopigmentation involves the use of topical corticosteroids or tars (topical cream), light or laser treatment, or surgical skin grafting. Psoralen and ultraviolet (PUVA) is the most widely used method for its treatment and is recommended as the first-line therapeutic modality. Treatment for chronic hypopigmentation involves topical prescription medications. For hypopigmentation that is unresponsive to medications, camouflaging with cosmetic tattooing or permanent makeup may be the best option. For patients who experience extreme hypopigmentation on over half of their body (a rare occurrence of vitiligo), overall depigmentation is an option (12,13). Although there are several modalities of treatment for hypopigmentation available today including physical therapies or chemical agents, but none of them is entirely satisfactory.

Of late, we have found significant advancement in this field of research using natural products, demonstrating the growing interest of academic researchers and pharmaceutical companies in developing successful herbal agents and their formulations for the treatment of pigmentary disorders. We have investigated the efficacy of certain compounds extracted from different plants such as *Psoralea corylifolia* (14), *Nigella sativa* (15), *Arachis*

*hypogea* (16), *Ficus carica* (17), *Aloe vera* (18), *Berberis vulgaris* (5-7) and have found that the herbal extracts have marked *in vitro* and *in vivo* effects on vertebrate melanocytes, which have tremendous potential to be developed as melanogenic or melanolytic agents without any toxicological implications. Development of novel agents which are truly effective and able to treat skin hyper and hypopigmentation will be a great achievement for mankind as the devastating disorders of skin pigmentation are a setback to millions of patients.

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