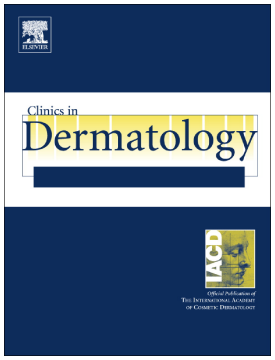
Herbal Sun Protection Agents: Human Studies



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Herbal Sun Protection Agents: Human Studies

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Abstract

Topical sunscreens are the mainstay for protection from ultraviolet radiation. With skin cancer rates on the rise and great interest in reversing or preventing the effects of photoaging, new molecules with potential to defend against UV damage have received a great deal of attention. Specifically, there is a growing interest in herbal substances that offer protection against the damaging effects of UV rays.
Herbal substances may work as adsorbents of the UV rays and antioxidants and potentially have few side effects. Many of them have shown the potential to protect from UV rays in *in vitro* studies and animal models. However only a limited number of human studies were conducted which we discuss in the current review. Among the most studied herbal substances that have proven photoprotective activity are green tea extract, carotenoids, and Polypodium Leucotomos (PLE). They were shown to increase minimal erythema dose (MED) and improve signs of photodamage. PLE was shown to be helpful in holistic treatment of several conditions including polymorphous light eruption (PMLE), solar urticaria and melasma, it also may be used as an adjuvant to the UVB treatment of vitiligo and photodynamic therapy (PDT) of actinic keratosis.

Introduction

Sunscreens protect against sunburn and skin cancer by reflecting, absorbing, or scattering ultraviolet (UV) rays. The first use of sun protecting creams containing salicylates was recorded in the 1920s, while petrolatum was used as an active ingredient through the 1930s and 40s [1]. Para-amino-benzoic acid (PABA) sun protective activity was discovered in 40s, but it is rarely used nowadays because of high risk of allergic contact dermatitis [2].
Minerals, such as titanium dioxide, became available in the 1950s [3]. These early sunscreens were the first to offer protection against UVB. As information became available about the role of UVA in sun damage, newer agents were employed for sun protection. [4]. Sunscreens generally may be placed in one of two categories:

1. physical sunscreens, containing zinc oxide and titanium dioxide