

Anti-Tyrosinase and Antibacterial Activities of Marine Fungal Extracts

Authors : Shivankar Agrawal, Sunil Kumar Deshmukh, Colin Barrow, Alok Adholeya

Abstract : A variety of genetic and environmental factors cause various cosmetics and dermatological problems. There are already claimed drugs available in market for treating these problems. However, the challenge remains in finding more potent, environmental friendly, causing minimal side effects and economical cosmeceuticals. This leads to an increased demand for natural cosmeceutical products in the last few decades. Plant derived ingredients are limited because plants either contain toxic metabolites, grow too slow or seasonal harvesting is a problem. The research work carried out in this project aims at isolation, characterization of marine fungal secondary metabolite and evaluating their potential use in future cosmetic skin care products. We have isolated and purified 35 morphologically different fungal isolates from various marine habitats of the India. These isolates have been functionally characterized for anti-tyrosinase, antioxidant and anti-acne activities. For molecular characterization, the Internal Transcribed spacer (ITS) region of 15 functionally active marine fungal isolates was amplified using universal primers, ITS1 and ITS4 and sequenced. Out of 15 marine fungal isolates crude extract of strains D4 (*Aspergillus terreus*) and P2 (*Talaromyces stipitatus*) showed 70% and 57% tyrosinase inhibition at 1mg/mL respectively. Strain D5 (*Simplicillium lamellicola*) has showed significant inhibition against *Propionibacterium acnes* and *Staphylococcus epidermidis*. In addition, all these strains also displayed DPPH- radical scavenging activity and may be utilized as skin cosmeceutical applications. Purification and characterization of crude extracts for identification of active lead molecule is under process.

Keywords : anti-acne, anti-tyrosinase, cosmeceutical, marine fungi

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