ASPI | Afarand Scholarly Publishing Institute; Turkey
ISSN: 2008-2630 Iranian Journal of War & Public Health 2023;15(2):167-175 10.58209/ijwph.15.2.167

Efficiency of Fungal β-carotene Against Some Causative Agents of Dermatomycoses

ARTICLE INFO

Article Type
Original Research

Authors
Abdulhafedh H.M.[1*] *MSc*
Al-Saadoon A.H.[2] *PhD*
Abu-Mejdad N.M.[1] *bPhD*

How to cite this article
Abdulhafedh H M, Al-Saadoon A H, Abu-Mejdad N M, Pashmdarfard M. Efficiency of Fungal β-carotene Against Some Causative Agents of Dermatomycoses. Iranian Journal of War & Public Health. 2023;15(2):167-175.

ABSTRACT

Aims Considering the increase of dermatomycoses and the emergence of new strains resistant to antifungal treatment, it is important to find an alternative treatment of natural origin. This study aimed to extract and purify β-carotenoid from two types of *Rhodotorula diobovata* and *Rhodotorula mucilaginosa* and test its reactivity toward some yeasts isolated from dermatomycoses infection.

Materials & Methods Rhodotorula samples were isolated from extreme environmental soils, and after cultivation, they were identified genetically and apparently. Then their pigments were extracted and purified. Beta-carotene was detected by ultraviolet and infrared regions. The activity of β-carotene was tested using three different concentrations using the agar diffusion method against four isolates of Candida and Cutaneotrichosporon dermatis pathogenic species by comparing its reactivity with the antifungal Nystatin.

Findings All tested isolates, including Candida albicans HAM25, Candida dubliniensis, Candida tropicales HAM13, and Cutaneotrichosporon dermatis Judy 4, showed resistance against β-carotene purified from R. diobovata and Nystatin at the concentration 0.01mg/ml. However, β-carotene and Nystatin showed activity against all isolates with concentrations of 0.02 and 0.03mg/ml. The purified compound from R. mucilaginosa showed activity against all isolates in three concentrations, according to concentration and type. There was a significant difference between the antifungal activity of both purified β-carotene and Nystatin ($p<0.0001$).

Conclusion Both isolates of *Rhodotorula diobovata* and *Rhodotorula mucilaginosa* produce β-carotene, and the preference quantitatively is to isolate R. diobovata first. The activity of β-carotene against all tested yeast isolates are higher than the antifungal Nystatin.

Keywords Dermatomycoses; Beta-Carotene; Rhodotorula; Candida; Antifungal Agents

CITATION LINKS

[1] Global, regional, and national incidence, prevalence, and years ... [2] The changing face of dermatophytic infections ... [3] Dermatomycoses and inflammation: The adaptive ... [4] Candida infections, causes, targets, and ... [5] The biology and chemistry of antifungal ... [6] Therapy for fungal diseases: opportunities ... [7] Growing burden of dermatophytosis in ... [8] Treatment-resistant tinea corporis, a potential ... [9] A mycological and molecular epidemiologic study on ... [10] Epidemiology of dermatomycoses and onychomycoses in Ireland (2001-2020) ... [11] Mechanism of Candida pathogenesis: revisiting ... [12] Antibiotic resistance: a rundown of a global ... [13] A review article on edible pigments ... [14] Molecular mechanism of violacein-mediated ... [15] Violacein synergistically increases 5-fluorouracil ... [16] Antibacterial, antioxidant and cytotoxic ... [17] Microbial ... [18] The relationship between core strength with static and dynamic balance in snowboard skiing male athletes [19] Yeast carotenoids: production ... [20] Phytochemical investigation and antibacterial ... [21] Temporal association between antibiotic ... [22] Antimicrobial and antioxidant activity ... [23]

[1]Department of Biology, College of Science, University of Basrah, Basrah, Iraq
[2]Department of Pathological Analy-