

ISOLATION OF HOT SPRING CYANOBACTERIA FROM IZMIR AND COMPARISON OF PHYCOBILIPROTEINS

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Abstract

Cyanobacteria (blue-green algae) strains were isolated from hot springs area of Seferihisar, Zeytindali, Sifne-Izmir, Turkey. Filamentous cyanobacteria are rich source of phycobiliproteins. Phycobiliproteins located in the thylakoid membranes of the cells, are functional light harvesting protein-pigment complexes, while the membrane-bound chlorophyll protein complexes were hardly impaired as demonstrated by SDS polyacrylamide gel electrophoresis. In this study, the filamentous cyanobacteria are isolation and cultivated crude extracts are obtained from phycobiliprotein after harvesting.

Keywords: *Cyanophyta, Cyanobacteria, Pigments*

Introduction

Blue-green algae (cyanobacteria) are prokaryotic microorganisms and have many beneficial features; they are very nutritive and have therapeutic effects such as immuno enhancing [1], [2] antioxidant, antiviral [3], and antiinflammatory effects [4]. In this study, the phycobiliprotein of filamentous cyanobacteria, isolated from different hot spring area in Izmir-Turkey, was isolated and cultivated. In a previous study carried out with protein content of the extracts. After cultivation of cyanobacteria biomass, crude extracts were obtained from all species.

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Materials and Methods

Isolation was done by plating on to Blue-Green Algae Medium (BG-11) containing 1.5 % agar. Individual cells were picked up and inoculated into the liquid medium. Protein contents of the extracts were determined by Bradford methods [5]. Sodium dodecylsulfate-polyacrylamide gel electrophoresis (SDS-PAGE) was carried out according to Okadjima et al. (1993) using a 12.5% polyacrylamide gel and Brilliant Blue R was used for visualization the proteins.

Result and Discussion

The number of species of microalgae is estimated at 22.000 to 26.000, however only a little part of these organisms have been studied in detail with regard to their biochemistry and ecophysiology [7]. Cyanobacteria (blue-green algae) play an important role for being the only source of the blue pigment phycocyanin, and since Spirulina is a very rich source of valuable chemicals, particularly C-PC, commercialized for its use for medical purpose [8]. This is the first study on a purified from hot spring isolate of cyanobacteria. Isolation and cultivation of the cyanobacteria from these samples, three different media were tested. It was observed that isolated colonies from each medium grew best in BG-11 medium. Consequently, four different filamentous cyanobacteria strains were isolated on BG-11 medium. The crude extracts (1-5) were confirmed by SDS-PAGE (Fig 1).

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