Isolation and Identification of Thermophilic Cyanobacteria From Hot Spring in Ramsar

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Background & Objectives: The hot springs because of high temperature and mineral salts are also important. Hot springs, due to growth the limited number of bacterias called extremophile has been in attention of researchers . A bunch of extremophile bacterias are Thermophilic cyanobacteria. The Thermophilic cyanobacterias are isolated from hot springs around the world. Thermophilic cyanobacteria grow in this environment at a temperature of 50 ° C . The purpose of this study is isolating of Thermophilic cyanobacteria that have the ability to absorb heavy metals, absorption of radioactive materials, Production of plastic material capable of spontaneous decomposition and production of antibiotics.

Methods: At first sterile tubes with caps were used to sampled from the hot spring, Then the samples kept under conditions of the spring temperature in the flask and transferred to the laboratory and In the medium were inoculated . In this research we used the BG-11 medium. This medium contains many minerals which are needed for Thermophilic Cyanobacteria. After the incubation period, we were able to isolated colonies of Thermophilic Cyanobacteria. It has been demonstrated that the supplement of carbon dioxide by 10 percent lead to accelerate the growth of Thermophilic Cyanobacteria. In this study both liquid and solid medium of BG-11 were used. Macroscopic growth in liquid medium was observed after 7 days incubation and macroscopic growth in solid medium was observed after 25 days incubation. We were able to provide optimal growth conditions such as temperature, light, humidity and carbon dioxide isolated Oscillatoria colonies that are group of the family of *Thermophilic Cyanobacteria* after the incubation period.

Results: The result showed that optimal growth of Cyanobacteria in BG-11 occurred at temperature 50 ° C, light intensity 3000 lux, at 150 rpm. In this study, we succeeded in isolating genus Oscillatoria from order Oscillatoriales. The results are similar to results in the city of Sofia in Bulgaria in the hot water springs Pancharevo by jaromir lukavsky and his partner however he isolated genus Lyngbya from order Oscillatorial. In 2007Jing, H; Liuwas able to separate the genus Synechococcus from hot spring in Asian.in 2002 , Jyh-Yih Leu and his partner were capable of isolating the genus Thermosynechococcus from hot spring in Taiwan. In 1995 cadirci and tuney were capable of isolating several genera of Thermophilic Cyanobacteria from hot spring Izmir, Turkey. It is noteworthy that this study will be conducted for the first time in Iran.

Keywords: Hot Spring; Thermophilic Cyanobacteria; BG-11; Oscillatoria; Lyngbya; Pancharevo