

## Influence of BG-11 culture media on growth of Cyanobacteria, *Oscillatoria* Species

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### ABSTRACT

*Oscillatoria* species is a Cyanobacteria that is important because it can conduct photosynthetic activities. it has a long un branching filamentous morphology and is green colour due to the chlorophyll content which is the unique features that set it apart from other. In this investigation it was cultured on BG-11 media and influences the growth after 1<sup>st</sup> week, parameters recorded i.e., fresh weight (2.04g) and dry weight (0.08 g) at room temperature. On 4<sup>th</sup> week fresh weight (at room temperature) recorded (1.18 g) and dry weight (0.1g). Culturing of Cyanobacteria, *Oscillatoria* species is the part of biotechnology but they play a very important role in all the field of environmental science and biology.

**Key words:** B.G-11 media, Cyanobacteria, *Oscillatoria*.

### INTRODUCTION

Cyanobacteria is also known as Cyanophyta, belongs to the phylum of bacteria that obtain their energy through photosynthesis. The name "Cyanobacteria" comes from the colour of the bacteria (Greek: *Kyanos* = blue). They are often called blue-green algae, they are quite small and usually unicellular, though they often grow in colonies large enough to see. Cyanobacteria can be found in almost every terrestrial and aquatic habitat oceans, fresh water, damp soil, temporarily

moistened rocks in deserts, bare rocks and soil. They are found in the almost every endolithic ecosystem. A few are endosymbionts in lichens, plants, various protists, or sponges and provide energy for the host. Some live in the fur of sloths, providing a form of camouflage. Cyanobacteria get their name from the bluish pigment phycocyanin, which they use to capture light for photosynthesis. They also contain chlorophyll a, the same photosynthetic pigment that plants use. In fact, the chloroplast in plants is a symbiotic cyanobacterium, taken up by a green algal ancestor of the plants sometime in the Precambrian. However, not all "blue-green" bacteria are blue; some common forms are red or pink from the pigment phycoerythrin (Beuernfeind, 1981). Cyanobacteria fulfill vital ecological functions in the world's oceans, being important contributors to global carbon and nitrogen budgets. Cyanobacteria been an important element for forming the earth's oxygen atmosphere, but it has also contributed to many other attributes important to human life. They are also important providers of nitrogen fertilizer in the cultivation of rice and beans. The other great contribution of the cyanobacteria is the origin of plants. Keeping in view the importance of Cyanobacteria the present investigation was carried out to Culture the *Oscillatoria* species through BG 11 medium and to observed the growth at different duration.

## MATERIALS AND METHODS

The investigation was carried out at the Laboratory of CSFER, Allahabad. The mother culture of Cyanobacteria, *Oscillatoria sp.* is obtained from IARI, New Delhi, The culture was to be grown on the BG-11 media (Rippka *et. al.*, 1979). 100 ml of *Oscillatoria* culture is added in 1L Erlenmeyer flask and volume makeup were done to 1L, the flask was swirled and properly mixed. All the culture media was sterilized by autoclaving at 121 °C, 15 Psi for 15-30 Minutes. This methodology was followed because of this species was easily propagated, cost effective and have high consistent. Sub culturing were done in 1000 ml conical flask containing the media after cooling at room temperature at the laminar flow bench after giving UV light for 15 minutes and then transfer were done. All the culture were maintained in the culture room at temperature 28±2<sup>0</sup> C with 8hrs light and 16 hrs dark photoperiod. After harvesting the fresh and dry biomass were recorded on 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> weak.



Fig.1 Culture growth of *Oscillatoria* sp.

## RESULTS AND DISCUSSION

After 1st week the dark green colour appears in the conical flask, Fresh weight of *Oscillatoria* sp. after filter (wet) = 2.040 g and Dry weight of *Oscillatoria* sp. (dry at room temp.) = 0.08 g recorded. On 2<sup>nd</sup> week growth, Fresh weight of *Oscillatoria* sp. After filter (wet) = 2.190 g, and Dry weight of *Oscillatoria* sp.(dry at room temp)=0.5 g. The third week result shows, Fresh weight of *Oscillatoria* sp. After filter(wet)=1.11 g and Dry weight of *Oscillatoria* sp.(dry at room tem)=0.2g. The fourth week result shows, Fresh weight of *Oscillatoria* sp. After filter (wet) =1.18 and Dry weight of *Oscillatoria* sp.(dry at room temp)=0.1 g. There was significant increases in growth on 2<sup>nd</sup> week. The yield of the biomass is one of the direct measures of the quantity of biomass produced per unit area with in specific time. Higher yield indicates higher biomass produced per unit area, the results are in accordance with Nehul, 2014. The growth was

may be due to as BG-11 medium composition and pH is moderate which resulted in higher accumulation of biomass (Cifuentes *et. al.*, 1996).

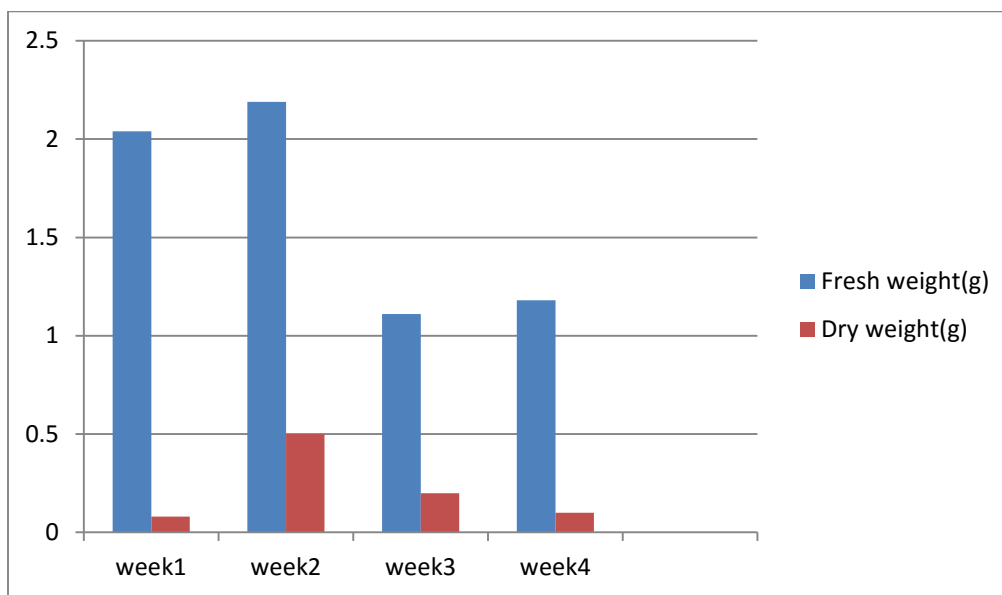


Fig 2. Culture Growth analysis of *Oscillatoria* species

## CONCLUSION

Based on the results it was concluded that BG-11 media pH has the significant effect on the growth of Cyanobacteria *Oscillatoria* species.

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