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NEW SIMPLE METHOD FOR GROWTH ALGAE MEASUREMENT

Roaa J. Elkheralla and Basim Y.Alkafajy

Department of Biology, College of Science, University of Thi-Qar, Iraq
e-mail : basim_y_d@yahoo.com

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ABSTRACT : Two types of algae have been taken *Chlorella vulgris* (unicellular, green algae) and *Oscillatoria amoena* (multicellular, blue green algae),growth of this algae was measured by command methods :direct counting, dry weight and chlorophyll content to compare with a new method turbidity meter. All the methods of calculating growth algae converge with the calculation of their growth by turbidity meter along the experience period, note that the lowest values were on the first and second day and began to increase until the seventh day in both algae species and by all methods.

Key words : Algae, growth methods, turbidi.

INTRODUCTION

Turbidity is the cloudy or opaque appearance of water caused by suspended solid particles. It is often used as a general water quality indicator, particularly for clean water such as drinking water. Electronic turbidity meters action througt measuring the amount of light which is disarranged at 90° by the suspended particles, as shown in the figure 1.

However, this disarranging does vary partly with the size of the particles – big particles may be more prone to disperse light at smaller angles, while small particles will warrant light to disperse at larger angles as showen in figure 2. Some meters state "ratio" and "non-ratio" in their specifications, they employ a range of detectors to requite for variance in the particle sizes present.

This study was aimed to determination a growth of algae by using turbidity meter depending on the different of algae cells in size and their relationship to diffuse light.

MATERIALS AND METHODS

Isolation and purification of algae

Chlorella vulgris (unicellular, green algae) and *Oscillatoria amoena* (multicellular, blue green algae) isolated and scrubbed according to (Stien,1973), then purified for the purpose of obtaining axenic cultures depending on the method of (Al-Arajy, 1996) and then diagnosed based on)Desikachary, 1959; Prescott, 1975).

Algae culture

Both algae species were grown by using media of Chu-10 wich modefide by Al-Arajy, (1996) after obtaining suitable amounts transferred to the 100 ml bottles full off with 70 ml of the previous media and incubated at temperature (25±3) ^{0}C.

Measuring the rate of growth

Direct count

Algae growth rate counted directly by slide Chamber (Coombs *et al*, 1985) slide was applied for direct cell enumeration after a series of 10 dilutions The cell numbers was calculated as follows:

Cell number /ml = cell number per small square/4* 10^{-6} ml

this method used only with *Chlorella vulgris*.

Dry weight

A specific size of (100 ml) were taken and filtered with filter paper (0.45 micrometers). The filter is ignored and the precipitate is carry to an electric oven temperature of 70 ° C for 24 hours and weighed by a sensitive balance after ignored the weight of filter paper.

Chlorophyll content

Culture was collected by centrifugation for 5min at 3000×g, added 1mL 80% acetone overnight at 4°C in the dark. The extract was submitted to quick centrifugation then transferred to a fresh tube. Chlorophyll were fixed by measuring at 645 and 663nm and were calculated using the following equation (Porra, 2002): Chl(mgL-1) = 7.34×OD663+17.76×OD645

Turbidity method

After blending the sample well and placing it with a mixer, after a series of 10-fold dilutions, turbidity measure