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The growth of filamentous microalgae is increased on biochar solid supports

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Abstract

Growth of filamentous microalgae and filamentous cyanobacteria can be enhanced when porous substrates are introduced into photobioreactors as solid supports. In this study, a biochar was tested as a solid support for cultures of *Klebsormidium flaccidum* and *Anabaena cylindrica* using BG11 culture medium, and their growth was compared with cultures without solid support. After 20 days of incubation with a 16:8 (light:dark) photoperiod, dry biomass and total carbon and nitrogen contents were determined in cultures of these microalgae with and without carbonaceous solid supports. Growth of *A. cylindrica* was enhanced by 80% in the presence of biochar as compared to the cultures without biochar. Also, the total nitrogen content of the material harvested from the solid support cultures with *A. cylindrica* was enhanced by about 10%. Scanning Electron Microscopy (SEM) images showed biofilm formation on the surface of the biochar with extension of the filaments attached to the external surfaces.

1. Introduction:

There is growing interest in using microalgae- and cyanobacteria-based technologies in agriculture since it has been recognized that biomass from these microorganisms can

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