Effect of carbon and nitrogen sources and carbon-to-nitrogen ratio on production of Exserohilum longirostratum.

ABSTRACT

The effects of carbon and nitrogen sources and the carbon-to-nitrogen ratio on the growth and sporulation of Exserohilum longirostratum were evaluated. Rice flour and malt extracts as the carbon and nitrogen sources, respectively, produced the greatest amount of mycelium. Sources that produced the most biomass were chosen as carbon and nitrogen sources in a C:N ratio test. However, in further experiments, glucose was chosen as the carbon source for the C:N ratio test because rice flour was found to be easily contaminated. Under the C:N ratio test (fixed carbon test), the highest spore production was obtained with a 5:1 ratio (4.78 × 106 spores/mL) and the highest biomass production was obtained with a 7.5:1 ratio (4.66 g/100 mL). In the fixed nitrogen test, 7.5:1 ratio provided the greatest output (4.08 × 106 spores/mL) whereas a 5:1 ratio produced the most biomass (4.33 g/100 mL). Meanwhile, the control which consisted of V8 agar without additional carbon and nitrogen source produced 1.07 × 106 spores/mL. These results provide information on the influence of carbon and nitrogen source and the C:N ratio that can be used in media for optimum growth and spore yield.

Keyword: Carbon; Mitrogen; C:N ratio; Exserohilum longirostratum; Spore yield.