Characterization of wild type yeast isolated from Sabah soil for environmental friendly biofuel production

ABSTRACT

Biofuel production by utilizing yeast during fermentation process is one of the main concern to maximize the ethanol productivity. In this study, a total of 20 soil examples were collected from 4 sampling site around Kota Kinabalu. They were selected due to their potential habitat of yeast S. cerevisiae. The purpose of this study was to isolate and characterize S. cerevisiae from soil for bioethanol production. A total of 6 strains of yeast were isolated with the use of yeast-extract peptone agar medium. The isolated strains were identified by morphological, physiological and molecular characterization, resulting in discovery of the S. cerevisiae from the samples. In physiological characterization by fermentation of six different carbohydrates showed that the yeast isolates P2A have potential to ferment maltose, glucose and galactose. The strain P2A was evaluated further for their ethanol tolerance capacity. The strain can tolerate up to 12.5% concentration of ethanol. Pure strain of P2A was inoculated in anaerobic conditions with 200 rpm for 48 h at 30oC to be used for ethanol. The concentration of glucose after 72 h of fermentation for P2A was found to be 0.982 mg/mL.