



Journal

J. Biol. Chem.
Environ. Sci., 2017,
Vol. 12(1): 113-130
www.acepsag.org

OPTIMUM CONDITIONS FOR INULINASE PRODUCTION USING THE YEAST *KLUYVEROMYCES MARXIANUS* NRRL Y- 7571 UNDER SOLID STATE FERMENTATION

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ABSTRACT

Inulinase is an enzyme relevant to fructose production by hydrolysis of inulin. This enzyme is also useful in the production of fructo-oligosaccharides that may be used as a new food functional part. Commercial inulinase is currently obtained using inulin as substrate, which is a relatively expensive raw material. In this study inulinase was produced by solid state fermentation using yeast *Kluyveromyces marxianus* NRRL Y-7571. Nine cellulosic substrates included sugarcane bagasse, potato peels, artichoke leaves and their blends at different ratios were tested to select the most suitable medium for inulinase production. The production of inulinase was carried out using experimental design technique. The effect of temperature, moisture, and supplements content were investigated. The optimum conditions for the production of inulinase were observed when sugarcane bagasse and artichoke leaves were used at the ratio of 75 : 25 in the solid state medium and the incubation period was 2 days at 30°C, initial pH value was 6, moisture content of the SS medium was 60% and the inoculum size was 2 ml. This conditions yielded an enzymatic activity that reached its maximum of 1252.08 U/g waste as substrate.

Key words: Artichoke leaves, *Kluyveromyces marxianus*, Inulinase production, Potato peels, Solid state fermentation, Sugarcane bagasse.