

Kinetic study of bio-demineralization and bio-deproteinization of shrimp biowaste for chitin recovery

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ABSTRACT/RESUME

Abstract: Demineralization (DM) and deproteinization (DP) of shrimp shell Parapenaeus longirostris using Lactobacillus helveticus, depends on the composition of culture medium, and temperature of incubation. In a synthetic medium containing glucose, completely different conditions are required for chitin recovery: 300 g/L of glucose and 35°C for maximal DM (60%) and 80 g/L of glucose and 30°C for a maximum of DP (70%). The use of date's juice shows that it is possible to extract chitin, in a single step, unlike the simple medium. The richness of the dates juice in mineral elements and the high concentration of reducing sugars (200 g/L) allowed for a maximum activity of proteolytic enzymes favored by a pH maintained constant at around pH 6 for 29h of fermentation, and a significant acidification expressed by a minimum pH of 4.7 which are reflected by rates of 83% and 63% of deproteinization and demineralization, respectively.
