CONTINUOUS BATCH SOLID STATE PRODUCTION AND EXTRACTION OF GLUCOAMYLASE IN LARGE SCEALE

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For small scale cultivations of fungi, spore inoculum is generally used. Use of spore inoculum becomes difficult when large scale cultivations are carried out and mycelial inoculum becomes practically feasible. Thus the suitable age of the mycelial inoculum should be determined. In this work first the mycelial solid inocula of different ages of *Aspergillus niger* CFTRI 1105 were developed by inoculating the spores(6 days old, 2×10^7 spores g wet medium $^{-1}$) to solid medium (g kg^{-1}; soya meat powder, 300 and paddy husk, 690 and (ml kg^{-1}) mineral solution, 30 and tap water, 270; mineral solution contained $ZnSO_4 7H_2O$,0.7g; $FeSO_4 7H_2O$,0.7g and $CuSO_4.5H_2O$,0.7g in 100 ml 2N HCl) and incubating for different peroids at 30°C. Then different inocula at different ages were mixed to solid medium (10%, w/w). The optimum age of the inoculum was mixed and incubated. Maximum activity (271.5U DMM^{-1}; Dry Mouldy Medium) was obtained on 2nd day. From the above first batch mouldy medium, 100g was withdrawn at 24 h and innoculated to 1.0 kg fresh solid medium. Similarly another batch was carried out and the maximum gluoamylase produced in the second and third batches were 420.2 and 272 U g DMM^{-1}(2nd day) respectively. To extract the enzyme, to the mouldy medium(1.0 kg, moisture content 60%) sterile distilled water(5.0l) was mixed either in one step or in two steps or in three steps or in counter current steps. The glucoamylase activity obtained in one step, two steps, three steps and counter current extraction method were 30.8, 42.7, 46.7 and 96.3 U ml^{-1} respectively. Hence the counter current eztraction method is most suitable to extract the glucoamylase from mouldy medium.