

Improving Naringinase Production by *Aspergillus niger* B₁³

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Naringinase is an enzyme which has the property of hydrolysing naringin which gives the bitterness of fruit juices. This study was aimed at the production of naringinase by *Aspergillus niger* B₁³. *Aspergillus niger* was cultured in naringin-agar slant, containing (gl⁻¹) naringin, 2.0; yeast extract, 1.0; glucose, 5.0; agar, 3.0 and 100ml mineral solution (ZnSO₄.7H₂O, 0.7; CuSO₄. 5H₂O, 0.7; and FeSO₄, 7H₂O, 0.7). On 6th day, spores of *Aspergillus niger* B₁³ were washed with (0.2%, v/v) Tween -80 and 2ml was inoculated to the liquid medium for naringinase production. The liquid medium contained (gl⁻¹) naringin, 2.0; glucose, 2.0; soy broth, 20, peptone, 7.0; MgSO₄.7H₂O, 0.1; KH₂PO₄, 0.5 and 100ml mineral solution at pH 6.0. All the fermentation studies were carried out at 30°C and the enzyme production was determined at 6th Day. When the concentration of naringin in the above liquid medium was varied from 1.0 to 6.0gl⁻¹, in 2.0 gl⁻¹ naringin containing medium highest naringinase activity (1.6Uml⁻¹) was obtained. To study the effect of different concentrations of soy broth on naringinase production, the concentration was varied from 0 - 60 gl⁻¹ while keeping all concentrations of the ingredients same. The enzyme produced was 1.1 and 1.72 U ml⁻¹ respectively with 0 - 60 gl⁻¹ soy broth. However in the medium containing 20gl⁻¹ soy broth highest naringinase activity (1.8Uml⁻¹) was obtained. As an alternative to 20gl⁻¹ soy broth same amount of peptone, yeast extract and corn steep liquor were added to the liquid medium and the naringinase produced was 1.4, 2.02 and 1.74 Uml⁻¹ respectively. As peptone and corn steep liquor did not increase naringinase production and yeast extract has shown slight increase in the enzyme production different amounts of yeast extract (0-60gl⁻¹) was introduced to the liquid medium instead of soy broth. When the concentration of yeast extract was increased from 0 to 60gl⁻¹, the naringinase produced was 1.82-1.47 Uml⁻¹ and the highest amount of enzyme was produced in the medium containing 20gl⁻¹ yeast extract (2.02Uml⁻¹). To the liquid medium which usually contained soy broth (20gl⁻¹), 20gl⁻¹ yeast extract was added, and the enzyme production was increased to 16.54Uml⁻¹. When the inoculated medium was mixed at 240 rpm the enzyme production was increased to 28.0 Uml⁻¹. Further work is in progress to improve the enzyme production.

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