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Purification of xylanase from *Bacillus* sp using Eudragit S-100

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The objective of the study is to compare the purification of xylanase produced by Bacillus sp with three phase partitioning and precipitation methods using Eudragit S 100 and to optimize these methods to increase the purification process. In the three phase partitioning method (Sharma *et al*, 2002) 14.6 UmL^{-1} of xylanase activity was obtained with a specific activity of 31.4 Umg^{-1}. The recovery of the enzyme was 52.2 % with 1.76 fold purification. In the precipitation method (Gupta *et al*, 1994), 15 UmL^{-1} of xylanase activity was obtained with the specific activity of 33.42 Umg^{-1}. The recovery of the enzyme was 52.2 % with 1.74 fold purification. Therefore the three phase partitioning and precipitation methods gave almost same results. To improve the purification, the conditions for purification by these methods were optimized. When the concentrations of $(NH_4)_2SO_4$ was increased, at 50% saturation, highest specific activity (50.73 Umg^{-1}) was precipitated. When different concentrations of Eudragit S-100 (10 to 150 gL^{-1}) was used in the precipitating method, highest xylanase activity (18.92 U mL^{-1}) was obtained with 40 gL^{-1}. Highest Eudragit bound xylanase activity was eluted (17.82 UmL^{-1}) with of 0.3M NaCl. When the three phase partitioning method was repeated with Eudragit 40gl^{-1}, 50% ammonium sulphate and the Eudragit bound xylanase was eluted with 0.3 M NaCl, 17.9 UmL^{-1} of xylanase activity was obtained with a specific activity of 38.10 Umg^{-1}. Xylanase enzyme yield was increased to 63.4 % and the purification fold was increased to 2.02. When the xylanase was purified by precipitation method with Eudragit 40gl^{-1} and the Eudragit bound enzyme was eluted with 0.3M NaCl, 19.0 UmL^{-1} of xylanase activity with the specific activity of 43.19 Umg^{-1} was obtained. Xylanase enzyme yield was increased to 69.7 % and the purification fold was increased

to 2.32. When the conditions were optimized among the two methods considered, the precipitation method was better than the three phase partitioning method for the purification of xylanase from Bacillus sp.

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