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Paper: Diversity

Stability and fatty soil cleaning efficiency of rice bran lipase, incorporated with commercial soaps

Alkaline lipase which can digest triacyl glycerol into free fatty acid and glycerol, was isolated from rice bran. Enzyme was extracted into pH 8 phosphate buffer fractionated with ammonium sulphate. Compatibility of the enzyme with different commercial soap was tested by incubating the enzyme with different concentrations of soap solutions prepared by Sunlight, Lifebuoy and Wonderlight soaps.

At the beginning, enzyme activity increases with increasing concentrations of all 3 soap solutions and reaches a maximum at a certain concentration level and beyond that level enzyme activity declines slowly. The maximum lipase activity was observed with 1%, 3% and 2.5% concentration levels of soap solutions of Sunlight, Lifebuoy and Wonderlight respectively.

The stability of the enzyme at these optimum concentration levels (soap concentrations which showed maximum enzyme activity) was evaluated by incubating the enzyme with soaps at these optimum concentration levels over a period of 14 days. Initial enzyme activity and the residual enzyme activity at different time intervals were measured. Washing performance tests were also carried out at different time intervals to evaluate the fatty soil cleaning efficiency. The results showed that enzyme remains stable and the maximum fatty soil cleaning efficiency of the enzyme is maintained even on the 14th day.

All these findings suggest that the activity of rice bran lipase can be enhanced by incorporating up to 1%, 3% and 2.5% soap concentrations of Sunlight, Lifebuoy and Wonderlight respectively, and the fatty soil cleaning efficiency of the enzyme at these soap concentrations remains for a maximum of 2 weeks.