

Rice bran Lipase; its stability and fatty soil cleaning efficiency under various storage conditions

M.K.B.Weerasooriya , A. A. N. Kumarasinghe
Department of Chemistry, University of Kelaniya

ABSTRACT

Clearing of lipid stain on textile fabrics is a major problem in detergent industry. Current cleaning method which involve the saponification at high temperature cost energy and wear and tear of textile fibers. In this regard, enzyme lipases which act as lipid stain digesters appear to be more effective, more economical and safer to use in detergent industry. Rice bran Lipase, one such enzyme was extracted, fractionated with $(\text{NH}_4)_2\text{SO}_4$ and 75-100% $(\text{NH}_4)_2\text{SO}_4$ fraction which had the highest lipase activity was obtained with 67% recovery. Stability and fatty soil cleaning efficiency of this enzyme fraction was tested for the period of 24 weeks under freeze dried/ unfreeze dried conditions storing at 4°C /room temperature. Study showed that freeze dried and unfreeze dried enzyme fractions stored at room temperature remained active and showed 100% fatty soil cleaning efficiency up to 16 weeks. Above this time limit enzyme remain less active and displayed poor cleaning efficiency. However, freeze dried and unfreeze dried enzyme fractions stored at 4°C were more stable than the fractions stored at room temperature. and maintain 100% cleaning efficiency even at the 24th week. These findings suggest stability and fatty soil cleaning efficiency of freeze-dried enzyme behave almost same as the unfreeze dried one implying freeze-drying doesn't make any positive or negative contribution to the stability or to the cleaning efficiency of the enzyme. Storing the sample at 4°C is recommended to maintain the longer life span of the lipase activity and the fatty soil cleaning efficiency.