

Effects of ozone treatment in microencapsulated β -galactosidase on inactivation of the enzyme and sterilization of microorganisms

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The present study was designed to examine the effect of ozone treatment in microencapsulated β -galactosidase on inactivation of the enzyme and sterilization of microorganism. The efficiency was the highest as 78.4% when the ratio of polyglycerol monostearate (PGMS) was 15:1. Activities of lactase remaining outside the capsule were affected by ozone treatment. With the increase of ozone concentration and duration of ozone treatment, the activity reduced significantly. In sensory aspect, with 2% microcapsule addition, no significant difference in sweetness was found compared with a market milk during 12 d storage. Above result indicated that the additional washing process of lactase was not necessary to inactivate the residual enzyme. In a subsequent study, the vegetative cells of microorganisms were completely killed with 10 ppm for 10 min treatment by ozone. The present study provides evidence that ozone treatment can be used as an inactivation and a sterilization process. In addition, these results suggest that acceptable milk products containing lactase microcapsules made by PGMS can be prepared with ozone treatment.