B9

EXTRACTION AND KINETIC STUDIES OF THE PROTEASE FROM MALTED RICE

Kalpana Chandrasekar, Vasanthy Arasaratnam
and K. Balasubramaniam.
Department of Biochemistry, Faculty of Medicine
University of Jaffna, Sri Lanka

The existence of proteolytic enzymes in wheat and barley flours has been recognized since early in the century. The present study deals with the extraction and kinetic studies carried-out with rice malt protease obtained from "Mottaikarupan" variety of rice. Germination of rice grains was carried out by soaking the grains in distilled water containing $0.10gl^{-1}$ $Na_2S_2O_5$ for 12 h, then drained the steeped water and allowed the grains to germinate in a moistened bag and kept in dark at 35°C for four days. The germination was arrested on the fourth day, by drying the malted rice at 40°C for 2 days and powdered. The protease from rice malt powder (1.0g) was extracted by suspending it in 5.0 ml of different extractants such as distilled water, phosphate buffer (0.01M, pH 7.0), phosphate buffer (0.01M, pH 7.2), $10gl^{-1}$ NaCl, and 1% v/v, Glycerol. High activity of protease was extracted with 0.03M phosphate buffer at pH 7.0. Then the optimum pH and concentration of the phosphate buffer were determined. The kinetic properties of the rice malt protease was studied. The optimum pH and temperature for the activity of malt protease were 7.2 (at 50°C) and 50°C (at pH 7.2) respectively. At the optimized conditions, the malt protease activity showed zero order kinetics for 60 min. The Km and Vmax of the malt protease were 1.646 gl^{-1} casein and 0.0773 U respectively. The temperature and pH stability of the protease were also determined.