P - 203

In Vitro stability of β-galactosidase microcapsules

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The present study was carried out to examine the efficiency of microcapsules and a stability of lactase *in vitro* in the simulated gastric and intestinal conditions. As a coating materials, medium-chain triacylglycerol (MCT) and polyglycerol monostearate (PGMS) were used. The highest efficiency of microencapsulation was found in the ratio of 15:1 as coating to core material with both MCT (91.5%) and PGMS (75.4%). In a subsequent experiment, lactose content was measured to study a microcapsule stability. Lysis of microcapsules made by MCT in simulated gastric fluid was proportionally increased such as 3% in pH 5 and 11% in pH 2 for 20 min incubation. In the case of PGMS microcapsulation, 11-13% of lactose was hydrolyzed at 20 min in all pHs and also very little amount (less than 3%) of lactose was hydrolyzed after 20 min in all pHs. The highest percentages of lactose hydrolysis in MCT and PGMS microcapsules were 68.8 and 60.8% in pH 7 and 8 during 60 min, respectively. Based on out data, the lactase microcapsules seemed to be stable when they stay in the stomach, and hydrolyzed rapidly in small intestine where the bile acid was excreted.