ABSTRACT

Natanael Leon (03420110031)

EFFECT OF DIFFERENT RATIO OF MALTODEXTRIN AND WHEY PROTEIN ISOLATE AS CARRIER AGENT AND CORE-TO-COATING RATIO TOWARDS SEVERAL CHARACTERISTICS OF ENCAPSULATED RED GINGER EXTRACT

(xiii + 37 pages: 2 tables, 14 figures, and 11 appendices)

Red ginger contains high in gingerol content as compared to other ginger variety, in which the compound provides beneficial effects such as antioxidant, anti-inflammatory, anti-asthmatic, and among others. As antioxidant compound is prone to heat and light, encapsulation method could be done to prevent the damage. The main objective of the study was to encapsulate antioxidant and phenolic compounds from red ginger extract and investigate effect of different coating materials and core-to-coating ratio on encapsulation of red ginger extract. Maltodextrin and whey protein isolate were chosen as coating materials. Coating material was prepared with different maltodextrin:WPI ratios of 10:0, 5:5, 0:10. In addition, two different cores to coating ratios of 1:10 and 1:20 were used. Moisture content, powder recovery, antioxidant activity, encapsulation efficiency, and particle size of microcapsules were determined. To conclude, the encapsulation of red ginger extract using combination of maltodextrin and WPI with 1:20 coating ratio gives best result in term of, antioxidant activity, encapsulation efficiency and powder recovery while WPI (1:20) resulted in smallest particle size. Thus, showing the potential of utilization of red ginger extract microcapsule to be applied in food industries.

Keywords: Encapsulation, maltodextrin, red ginger, spray dry, whey protein isolate