



Formulation Design and Optimization of Rice Bran Oil Microencapsulation with Ionic Gelation Method

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Abstract:Background: Rice bran oil (RBO) from *Oryza sativa* is the oil that has unique content and rich in bioactive compounds, γ -oryzanol. However, it is a problem in the use of RBO due to a rich in free fatty acid, causing limitations regarding handling and uses. Microencapsulation is one of the methods to simplify handling and to protect the oil from environmental influences. The aim of this study was to optimize a microencapsulation condition of RBO with ionic gelation method (cross-linking) of sodium alginate with calcium chloride using encapsulator. **Methods:** RBO was microencapsulated using Buchimicroencapsulator using ionic gelation method. **Results:** three different formulations were prepared with ratio 1:1 by encapsulator. The method modifies electrode, flow rate, pressure, and frequency. The microcapsules were evaluated for optical graph analysis. Efficiency process was evaluated by microcapsules dry weight, efficiency proses of formula 1 is 34.36%, formula 2 is 35.75% and formula 3 is 35.55%. **Conclusion:** The results showed the formula 2 has the good characteristics, such as the highest process efficiency and the percentage efficiency.

Key words: Oryzanol, rice bran oil (RBO), microencapsulation, ionic gelation.