

## Microencapsulation of single-cell protein from various microalgae species

<b>Title</b>	Microencapsulation of single-cell protein from various microalgae species
<b>Author Order</b>	4 of 5
<b>Accreditation</b>	
<b>Abstract</b>	<p>ABSTRACT The objective of the research was to evaluate nutritional values of microencapsulated diet made from single cell protein of microalgae. Complete randomized design was applied using three different types of microalgae for inclusion trials i.e. (A) Nannochloropsis sp., (B) Chlorella sp., and (C) Spirulina sp. with five replications respectively. Microencapsulated diet was produced by a modification method based on thermal cross-linking with stable temperature. Phytoplankton was cultured in sea water for which fertilized by a modification of Walne and Guillard fertilizer. The results showed that the highest value of nutrition content was Spirulina sp. and the average composition of protein, crude lipid, carbohydrate, ash, nitrogen free extract, and water content was 34.80%, 0.30%, 18.53%, 20.09%, 26.29%, and 13.32%, respectively. Organoleptically, microcapsule showed that the color of capsule was dark green and smell fresh phytoplankton. Keywords: microcapsule, single-cell protein, thermal cross-linking, microalgae, phytoplankton</p> <p>ABSTRAK Tujuan penelitian adalah mengevaluasi kandungan nutrisi pakan mikrokapsul protein sel tunggal (single cell protein) yang berasal dari berbagai jenis mikroalga (fitoplankton). Rancangan percobaan yang digunakan adalah rancangan acak lengkap, dengan perlakuan inklusi mikrokapsul dari jenis fitoplankton (A) Nannochloropsis sp., (B) Chlorella sp., dan (C) Spirulina sp., masing-masing diulang lima kali. Pembuatan mikrokapsul dilakukan dengan menggunakan modifikasi metode dasar thermal cross-linking, serta menerapkan teknik pengeringan suhu konstan. Proses pembuatan mikrokapsul protein diawali dengan kultur fitoplankton jenis Nannochloropsis sp., Chlorella sp., dan Spirulina sp. Kultur dilakukan di dalam laboratorium menggunakan media air laut dan modifikasi pupuk Walne dan Guillard. Hasil penelitian menunjukkan bahwa kandungan nutrisi tertinggi terdapat pada jenis mikrokapsul protein sel tunggal yang berasal dari Spirulina sp., dengan rata-rata komposisi kandungan protein 34,80%, lemak 0,30%, karbohidrat 18,53%, abu 20,09%, dan BETN 26,29%. Mikrokapsul berwarna hijau tua dan aroma fitoplankton segar. Kata kunci: mikrokapsul, protein sel tunggal, thermal cross-linking, mikroalga, fitoplankton</p>
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