MICRO BIOENCAPSULATED PHOTOSYNTHETIC BACTERIA USING LACTIC

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ABSTRAK

Seiring meningkatnya laju pertumbuhan penduduk, laju kebutuhan pangan meningkat pula. Melihat isu ini, tentu diperlukan teknologi pertanian yang memadai untuk memajukan mutu pangan. Pada saat ini, inovasi teknologi bidang pertanian menggunakan teknologi yang ramah lingkungan yaitu *photosynthetic bacteria*. Keunggulan *photosynthetic bacteria* adalah kemampuan memanen cahaya matahari yang luar biasa serta meningkatkan sistem imun pada tanaman (Anonym, 2021). Meskipun sudah diterapkan, *photosynthetic bacteria* memiliki kekurangan yaitu pengaplikasian yang kurang praktis. Oleh sebab itu, diperlukan upaya yaitu dengan mikroenkapsulasi menggunakan metode *spray drying*. Penelitian ini bertujuan untuk: (1) Mengetahui keberhasilan dari pembuatan mikroenkapsulasi *photosynthetic bacteria*; (2) Mengetahui total bakteri probiotik dari hasil mikroenkapsulasi *photosynthetic bacteria*; (3) Mengetahui total koloni bakteri dari hasil mikroenkapsulasi *photosynthetic bacteria*. Metode penelitian menggunakan metode deskriptif kuantitatif eksperimental dengan observasi. Pengujian efektivitas dilakukan setelah proses mikroenkapsulasi dengan 2 perlakuan, yaitu penambahan 1 g dan 2 g mikroenkapsulasi *photosynthetic bacteria* terhadap masing-masing biang. Selain itu untuk memastikan total bakteri probiotik yang hidup dilakukan dengan metode pengenceran. Hasil yang didapatkan dari uji aplikasi, bahwa metode mikroenkapsulasi berhasil dengan penambahan 2 g mikroenkapsulasi *photosynthetic bacteria* terhadap biang dengan total koloni bakteri probiotik 1,0 x 10^4 CFU/ml.

Kata Kunci: mikroenkapsulasi, *photosynthetic bacteria*, probiotik

ABSTRACT

As the rate of population growth increases, the rate of food needs increases as well. This problem certainly requires adequate agricultural technology to advance the quality of food. At this time, technological innovation in agriculture leads to environmentally friendly technology that have been implemented, namely *photosynthetic bacteria*. The advantages of *photosynthetic bacteria* are the ability to harvest extraordinary sunlight and boost the immune system in plants (Anonym, 2021). Although it has been applied, *photosynthetic bacteria* still have the disadvantage of application that is less practical. Therefore, one way to overcome it is microencapsulation using spray drying methods. This research aims to: (1) Knowing the success of the creation of microencapsulation of *photosynthetic bacteria*; (2) Knowing the total probiotic bacteria from the microencapsulation of *photosynthetic bacteria*; (3) Knowing the total bacterial colony from the microencapsulation of *photosynthetic bacteria*. Research methods use experimental quantitative descriptive methods with observation. Effectiveness testing is carried out after the microencapsulation process with 2 treatments, with the addition of 1 g and 2 g microencapsulation of *photosynthetic bacteria* in each culprit. The dilution methods were used to find the total live probiotic bacteria. The results obtained from the application test, that microencapsulation method succeeded with the addition of 2 g microencapsulation *photosynthetic bacteria* in the culprit with a total colony of probiotic bacteria 1.0 x 10^4 CFU / ml.

Keywords: microencapsulation, *photosynthetic bacteria*, probiotics