Nanoemulsions: Factory for Food, Pharmaceutical and Cosmetics

By: Azmi, NAN (Azmi, Nor Azrini Nadiha)[1]; Elgharbawy, AAM (Elgharbawy, Amal A. M.)[1]; Motlagh, SR (Motlagh, Shiva Rezaei)[2]; Samsudin, N (Samsudin, Nurhusna)[1]; Salleh, HM (Salleh, Hamzah Mohd.)[1]

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Abstract

Nanotechnology, particularly nanoemulsions (NEs), have gained increasing interest from researchers throughout the years. The small-sized droplet with a high surface area makes NEs important in many industries. In this review article, the components, properties, formation, and applications are summarized. The advantages and disadvantages are also described in this article. The formation of the nanosized emulsion can be divided into two types: high and low energy methods. In high energy methods, high-pressure homogenization, microfluidization, and ultrasonic emulsification are described thoroughly. Spontaneous emulsification, phase inversion temperature (PIT), phase inversion composition (PIC), and the less known D-phase emulsification (DPE) methods are emphasized in low energy methods. The applications of NEs are described in three main areas which are food, cosmetics, and drug delivery.

Keywords

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Author Information

Reprint Address: Elgharbawy, AAM; Salleh, HM (reprint author)

Int Islamic Univ Malaysia, Int Inst Halal Res & Training INHART, POB 10, Kuala Lumpur 50728, Malaysia.

Addresses:

[1] Int Islamic Univ Malaysia, Int Inst Halal Res & Training INHART, POB 10, Kuala Lumpur 50728, Malaysia

[2] Univ Putra Malaysia, Fac Engn, Dept Chem & Environm Engn, Serdang 43400, Selangor, Malaysia

E-mail Addresses: azriniazmi@gmail.com; amal.elgharbawy@gmail.com; shiva.rezaei.m@gmail.com; nurhusna@iium.edu.my; hamzah@iium.edu.my

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