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DEVELOPMENT AND CHARACTERIZATION OF PRECIROL ATO 88 BASE IN NANOSTRUCTURED LIPID CARRIERS (NLC) FORMULATION WITH THE PROBE SONICATION METHOD

Garnadi Jafar ⁽¹⁾ Marline Abdassah ⁽²⁾ Taofik Rusdiana ^{(3)*} Rizki Khairunisa ⁽⁴⁾

⁽¹⁾ Department of Pharmaceutics and Pharmaceutical Technology, Universitas Padjadjaran, Bandung, Indonesia.

⁽²⁾ Department of Pharmaceutics and Pharmaceutical Technology, Universitas Padjadjaran, Bandung, Indonesia.

⁽³⁾ Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, Universitas Padjadjaran, Bandung, Indonesia.

⁽⁴⁾ Department of Pharmaceutics and Pharmaceutical Technology, Bhakti Kencana University, Bandung, Indonesia.

Abstract

Objective: Adapalene is a medicinal ingredient that can be used to treat acne. Adapalene has a Log P value of 8.6 and has high lipophilic and low solubility in water and is potentially degraded. Adapalene NLC can increase biphasic drug penetration at low doses but has good reactivity and provides occlusive properties that can increase skin hydration, thereby accelerating acne treatment.

Methods: Forming Adapalene NLC using the method of heat homogenization followed by ultrasonication probe. The NLC formulas used were Precirol ATO5 ®4.0%, Myritol ® 2%, Cremophor RH 40 1%, Plantacare 1%, Tegocare 1%, and Adapalene 0.3%. Following that is the characterization of particle size, polydispersity index, zeta potential, efficiency entrapment.

Results: The results showed the measurement of particle size with a range (150-318 nm), index polydispersion showed (0.12-0.36) and zeta potential (-26)-(-60 mV) and efficient entrapment testing showed results (84-98 %). In the TEM morphological evaluation of images showing spherical and evenly distributed forms, this is in line with the results of the adapalene NLC characterization.

Conclusion: These results suggest that NLC containing adapalene showed excellent result.

Author Keywords

Adapalene, Precirol ATO5 ®, Nanostructured Lipid Carriers (NLC), Probe Sonication

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