

**SKIN PENETRATION AND EFFECT ON SKIN
OF GREEN COFFEE BEAN EXTRACT-LOADED
NLCs IN CREAM**

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The green robusta coffee bean extract exhibited good antioxidant activity and anti-inflammatory activity [1]. It contained caffeine and chlorogenic acid as major compounds [1]. The aims of this study were to evaluate skin permeation of green robusta coffee bean extract-loaded nanostructured lipid carriers incorporated into cream (GB-NLCs cream) and study effectiveness of the formulation in human volunteers. The skin permeation study was tested by Franz diffusion cell using stillborn piglet skin compared between GB-NLCs cream and extract in cream. The results illustrated that the percentage accumulation amount of chlorogenic acid and caffeine released from GB-NLCs cream were higher than the extract in cream. The cumulative amount of chlorogenic acid and caffeine in stratum corneum and viable epidermis and dermis from GB-NLCs cream were also higher than the extract in cream due to small particle size, film former, and occlusive effect [2,3,4]. The effectiveness of the GB-NLCs cream was evaluated in 15 volunteers in terms of increasing skin moisture and decreasing melanin by Corneometer[®] and Mexameter[®]. After using the formulation for 4 weeks, the GB-NLCs cream significantly ($p < 0.05$) increased skin moisture and reduced melanin content when compared with the initial. In addition, skin irritation did not observe in all volunteers after application. Therefore, green coffee bean extract-loaded NLCs in cream was able to improve skin permeation and aesthetic effect on the skin. It has potential to use as commercial skin care product.

References

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