

ABSTRACT

IN VITRO SPF VALUE TEST OF NANOENCAPSULATED PURPLE SWEET POTATO LEAF EXTRACT (*Ipomoea batatas* L.) ANTIN-3 VARIETY

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*The sun's UV rays can damage the skin. Sunscreen can absorb UV rays, the effectiveness of sunscreen is determined as a SPF value. Ingredients that can be used for sunscreen are flavonoids and polyphenols, its in the leaf extract of purple sweet potato (*Ipomoea batatas* L.) variety Antin-3. Flavonoids absorb ultra violet rays while polyphenols protect the skin from UV radiation. Flavonoids and polyphenols are unstable to light and temperature exposure, so they are formulated into nanoencapsulation by ionic gelation method using chitosan-NaTPP combination. The purpose of this study was to determine the SPF value between encapsulated Antin-3 leaf extract and Antin-3 leaf extract. Five concentration ranges were made, namely 100 ppm, 300 ppm, 500 ppm, 700 ppm, 900 ppm with a wavelength of 290 nm - 320 nm using UV-Vis spectrophotometry. This study on Antin-3 leaf extract samples with a concentration of 100 ppm produced an SPF value of 18.904, a concentration of 300 ppm produced an SPF value of 41.0123, a concentration of 500 ppm produced an SPF value of 41.0747, a concentration of 700 ppm produced an SPF value of 41.024, and a concentration of 900 ppm produced an SPF value of 41, 3807 while in the nanoencapsulated sample of Antin-3 leaf extract, the concentration of 100 ppm produced an SPF value of 7.3147, the concentration of 300 ppm produced an SPF value of 24.4797, the concentration of 500 ppm produced an SPF value of 36.98, the concentration of 700 ppm produced an SPF value of 39.5063, and the concentration of 900 ppm produced an SPF value of 39.8493. This is due to the possibility that flavonoids and polyphenols in the nanoencapsulated sample at 100 ppm are encapsulated so that they are not read perfectly, so the nanoencapsulation needs to be ultrasonicated first. In vivo testing of SPF value is required.*

Keywords: *Antin-3 leaf extract, nanoencapsulation, SPF value, sunscreen.*