



## International Journal of PharmTech Research

CODEN (USA): IJPRIF, ISSN: 0974-4304

Vol.9, No.3, pp 198-203, 2016

# Span 60 as Surfactant of Topical Microemulsion of Purple Sweet Potato (*Ipomoea batatas* L.) Ethanol Extract and Antioxidant Activity Test using Dpph Method

Rise Desnita<sup>1\*</sup>, Sri Wahdaningsih<sup>1</sup>, Sally Hervianti<sup>1</sup>

Department of Pharmacy, Faculty of Medical, Tanjungpura University, Indonesia

**Abstract: Objective:** To determine the antioxidant activity of microemulsion of purple sweet potato ethanol extract that is formulated using a various concentration of Span 60.

**Methods:** The purple sweet potato was extracted with ethanol using maceration method. Then IC<sub>50</sub> value of ethanol extract of purple sweet potato was determined, and formulated in microemulsion with various concentration of Span 60. Each formula has a concentration ratio of Span 60 as follows, Formula A (FA) 0.75%, Formula B (FB) 1%, and Formula C (FC) 1.25%, and use cosurfactant PEG 400 in the ratio of surfactant: cosurfactant 1: 1 for each formula. Measurement of antioxidant activity was conducted using DPPH method. The physicochemical properties and stability of microemulsion is tested for 28 days, covering organoleptic, pH, specific gravity and centrifugation tests. The most stable microemulsion was tested for its antioxidant activity by the value of percent inhibition, then the size of microemulsion globules was observed using PSA (Particle Size Analysis).

**Results:** IC<sub>50</sub> of ethanol extract of purple sweet potato obtained at 38.246 ppm. Organoleptic and centrifugation test showed the occurrence of creaming at FC. pH was in the range of pH that is safe for the skin (5.8 to 5.9) with the density of microemulsion that's relative stable. FA is the most stable formula. FA showed antioxidant activity with percent inhibition of 81.37254% with globule size from 111.1 to 152.4 nm.

**Conclusion:** Based on research that has been done, it can be concluded that microemulsion formula A with a concentration of 0.75% Span 60 generates the most stable microemulsion and has antioxidant activity with percent inhibition of 81.37254%.

**Keywords :** purple sweet potato, antioxidant, DPPH, microemulsion, Span 60.