ABSTRACT

Marcelia (03420070113)

**Stability of Crude Extract Antioxidant from Red Dragon Fruit (*Hylocereus polyrhizus*) Peel toward pH and Temperature**

(xviii+71 pages: 21 tables; 27 figures; 12 appendices)

*Red Dragon Fruit* (*Hylocereus polyrhizus*) peel as a waste had not been optimally utilized. It contained antioxidant compound for example, phenolic compound. The purpose of this research is to study the stability of the antioxidant activity toward pH and temperature. The treatment in this study is conducted to determine the selected extract using combination of solvent ethanol and ethyl acetate with ratio 100:0, 80:20, 60:40, 40:60, 20:0, 0:100. Beside, the extraction is done by maceration with shaker using variation of temperature (26°C, 40°C, and 50°C) and time (3 hours, 6 hours, and 9 hours). After the best extract is obtained then continued with the use of pH and temperature by RSM. The pH was 4, 5, 6, 7, and 8 with 65°C, 75°C, 85°C, 95°C of heating in 30 minutes. The result showed that the combination of ethanol and ethyl acetate with ratio 60:40, 26°C of extraction temperature, and 6 hours of maceration had the best phenolic content and antioxidant activity. The best extract had phenolic content of 13.31 mg GAE/g extract and IC\textsubscript{50} of 603.80 ppm. pH and temperature can reduce antioxidant activity of red dragon fruit peel. Stability of antioxidant from red dragon peel obtained from pH 3.5 to 5.5 and temperature from 50°C to 75°C. The best antioxidant activity was obtained from extract with pH 4.44 and 62.7°C treatment. The best extract had phenolic content of 10.10 mg GAE/g extract and IC\textsubscript{50} of 646.96 ppm of DPPH.

Keyword: *Hylocereus polyrhizus*, dragon fruit peel, antioxidant, pH, temperature, RSM

Reference: 47 (1977-2011)