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| --- | --- |
| **Title** | Title of Thesis |
| **Author** | First name Last name |
| **Advisor** | Acad. position First name Last name, Abb. of degree. |
| **Co - Advisor** | Acad. position First name Last name, Abb. of degree.  Acad. position First name Last name, Abb. of degree. |
| **Academic Paper** | Thesis Abb. Name of Degree in Name of Program,  Naresuan University, Year |
| **Keywords** | 1st,  2nd,  3rd |

**ABSTRACT**

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***Example:***

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| **Title** | DEVELOPMENT OF COSMETIC CREAM  CONTAINING MULBERRY EXTRACT |
| **Author** | Rawiwan Posuwan |
| **Advisor** | Professor Kornkanok Ingkaninan, Ph.D. |
| **Academic Paper** | Thesis M.Pharm in Pharmaceutical Sciences  (International Program), Naresuan University, 2004 |
| **Keywords** | Cosmetic cream, Mulberry extract |

**ABSTRACT**

The purposes of this study were to determine an antioxidant activity of various extracts of mulberry leaves and to develop a cosmetic cream formulation containing mulberry extract. The antioxidant was measured using DPPH radical scavenging assay. Quantitative analysis and stability of rutin, the believed major antioxidant in mulberry leaves, was done using high performance liquid chromatography (HPLC). The stability of the formulation was performed under stress condition of 10 heat-cool cycles. Rheologic properties, phase separation, and changing in color of the formulation were observed. The highest antioxidant activity was found in water extract with the value of 71.55% free radical scavenging activity at concentration of 200 ppm while rutin gave 86.33% at the same concentration. Rutin appeared to be stable at pH 5. However, the amount of rutin decreased as a function of time at pH 7 and pH 8 in elevated temperatures of 60°C and 80°C. Despite the instability of rutin at higher pH, the antioxidant activity of the extract was stable at these conditions up to 24 hours. This result suggested that there might be other compounds that provide antioxidant activity to the extract. Thus, the formulation was developed base on the activity of the extract. A cosmetic cream containing mulberry leave spray dried extract has been developed. Antioxidant activity of mulberry leave cream was found to be stable under stress condition of 10 heat-cool cycles. The mulberry cream showed good stability in both physical properties and antioxidant activity, while amount of rutin decrease more than 70% of original amount after 10 cycles of heat-cool processes.