

Thesis Title	Bioactive Compounds from Goji Berry for Cosmetic Products
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ABSTRACT

The fruit of *Lycium ruthenicum* (goji berry) is widely used worldwide to be functional food and traditional medicinal herbs. This study demonstrated promising results for microwave-assisted extraction (MAE) of antioxidative from the fruit of *L. ruthenicum*. The crude extract was further separated by solid-phase extraction (SPE) led to water and ethanolic fractions. The chemical compositions of ethanolic fraction from *L. ruthenicum* have been investigated by high-performance liquid chromatography coupled to quadrupole time-of-flight mass spectrometry (HPLC-ESI-QTOF-MS/MS). A total of 32 compounds were identified in the fruit of *L. ruthenicum*. Spermidine alkaloids were detected 30 compounds. The main for this group of compounds was obtained of fragment ions at m/z 222 and 220. Their ethanolic fraction showed the powerful antioxidant in DPPH and ABTS assays for antioxidant activities. Most spermidine alkaloids showed potential in antioxidant activity.

L. ruthenicum purple color (LRP) extracted with 80% ethanol has been used to formulate cosmetic products, showing the most significant antioxidant activities (DPPH, ABTS, and FRAP assay). For this study, serum skin irritation investigation did not lead to skin irritation with serum-containing *L. ruthenicum* extract (mean irritation index at 0.00).

Keywords: *Lycium ruthenicum*, Spermidine Alkaloids, Antioxidant activity, Skin Irritation

