



Formulation and Evaluation of Natural Antioxidant Cream Containing Ethanolic Extract of Quercetin from Onion (*Allium cepa L.*) Skin Waste

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Abstract

Brown onion dry outer scales are among the most known sources of free quercetin. Quercetin is only present in other plant tissues in the form of glycosides. Use of antioxidants is a useful measure that will prevent the effects of photoaging of the skin. Quercetin is a natural occurring antioxidant which is essential in the defense of cells against oxidation and inflammation. Due to such characteristics, it has found considerable adoption in skincare products, nutraceutical supplements, and therapeutic uses in pharmaceutical products.

The current paper was done to isolate quercetin in *Allium cepa L.* (alternative name: onion) of Amaryllidaceae family, prepare and test the antioxidant and antimicrobial activity of quercetin topical cream. A procedure of quercetin extraction was expounded. The ethanol extract was prepared and the filtrate obtained dried. Quercetin extract was extracted using the emulsification technique and the extract was formulated into a cream and tested to determine the pH, viscosity, spreadability, stability, antioxidant and antimicrobial. The antioxidant ability of quercetin cream was measured using stable 2, 2 -Diphenyl-1-picryl hydrazyl (DPPH). The disc diffusion method was used to ascertain the zone of inhibition of the formulated cream on the test organisms.

These values were acceptable: pH 5.61+ -0.07 was chosen as good in topical use, viscosity of 16550 + -1.41 mPas (milliPascal second) was considered good, and excellent spreadability. The findings revealed that quercetin cream had high antioxidant property with an IC₅₀ value of 0.004 and 92.3% ± 0.24 radical scavenging activity at a concentration of 0.1mM. Quercetin cream was also investigated in-vitro against four bacterial types in regard to antibacterial activity. It was also

