青草植物抗氧化評估之灰關聯分析與灰決策

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摘要

本研究檢測九種青草植物其水相與甲醇相之抗氧化成分、抗氧化功能性及抗氧化力。抗氧化成分包括類黃酮、單寧、比林類、類胡蘿蔔素及多酚類。青草植物包括車前草、咸豐草、枸杞葉、甘藷葉、台灣百合、雷公根、皺葉薄荷、野薄荷及仙草等。抗氧化功能性包括還原力、清除 DPPH 自由基、螯合亞鐵離子及清除超氧陰離子能力。抗氧化力包括亞麻油酸乳化系統共軛雙烯生成抑制性與 LDL 遲滯期。並且利用灰關聯分析與灰決策分析抗氧化成分與抗氧化功能及抗氧化力間之相關性。結果顯示，不同抗氧化成份在不同檢驗系統展現不同的貢獻度。水相與甲醇相萃取物之綜合表現，以咸豐草之表現最佳。

關鍵詞：青草植物、抗氧化成分、抗氧化功能性、抗氧化力、灰關聯分析、灰決策。

ABSTRACT

The aim of this study was to evaluate the antioxidative substances, antioxidative functions and antioxidative capacity of nine herb plants, including *Plantago asiatica* Linn., *Bidens pilosa* Linn., *Lycium chinense* Mall., *Ipomoea batatas* Linn., *Lilium formosanum* Wall., *Centella asiatica* (L.) Urban., *Mentha crispa* Menth., *Mentha arvensis* L. var. *piperascens* Malinv., *Mesona procumbens* Hemsley.. The antioxidative substances include flavonoids, tannin, porphyrins, carotenoids, polyphenol. The antioxidative functions, such as reducing power, chelating Fe^{2+} ion, scavenging of DPPH radicals and superoxide anion were determined. The antioxidative capacity includes the inhibition percentage of conjugated diene formation in the linoleic acid emulsion system and the delay of lag phase of LDL. The correlation between antioxidative compositions, antioxidative functions and antioxidative capacity is analyzed. Meanwhile, the grey relation analysis and grey decision analysis are employed to analyze the interaction among the three.