咸豐草與楓香之抗氧化性及成分分析 = Study on the antioxidativity and chemical components of bidens pilosa and ...

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摘 要

本研究以咸豐草經不同烘乾溫度(40、60、80和100°C)處理後，再以50%乙醇為溶劑進行熱回流萃取，探討烘乾溫度對抗氧化活性之影響，咸豐草與楓香以不同溶劑(正己烷、二氯甲烷、甲醇-水及甲醇-氯仿)依序進行熱回流萃取，量測不同溶劑萃取物之抗氧化活性。抗氧化成分含量測試包括總多酚化合物及類黃酮化合物含量分析，抗氧化活性測試包括清除DPPH自由基能力、螯合亞鐵離子能力、相對還原力、清除超氧陰離子能力、抑制微脂粒氧化作用及清除ABTS陽離子等，並與BHA、EDTA、α-tocopherol及gallic acid之抗氧化性做比較。 結果顯示，以不同溫度處理咸豐草莖部與葉部樣品，再經50%乙醇進行熱回流萃取，所得萃取物之萃取率，葉高於莖。於各試驗皆以40°C烘乾之葉部抗氧化活性最佳，其類黃酮及總多酚含量最多，分別為10.89與63.96 mg/g；在清除DPPH自由基試驗中，其IC50為0.03 ± 0.00 mg/g；在螯合亞鐵離子能力試驗中，其IC50為0.08 ± 0.01 mg/g；在相對還原能力試驗中，k值為1.13 ± 0.01 mL/mg；在清除超氧陰離子能力試驗，其清除率為60.70%；在抑制微脂粒氧化作用試驗，其抑制率為70.99%；在清除ABTS陽離子試驗，其IC50為0.03 ± 0.01 mg/g。另外，以不同溶劑依序萃取咸豐草與楓香，萃取物之總多酚含量皆以甲醇萃取物之水層萃取物含量最高，分別為63.60與49.41 mg/g，類黃酮含量以甲醇萃取物之氯仿層萃取物含量最高，分別為49.91與26.81 mg/g，於抗氧化活性試驗中，皆以甲醇萃取物之水層萃取物表現之抗氧化活性最佳，在清除DPPH自由基試驗中，其IC50分別為0.03 ± 0.00與0.06 ± 0.00 mg/g；在螯合亞鐵離子能力試驗中，其IC50分別為0.06 ± 0.01與0.23 ± 0.00 mg/g；在相對還原能力試驗中，k值分別為0.88 ± 0.05與0.40 ± 0.01 mL/mg；在清除超氧陰離子能力試驗，其清除率分別為64.14與72.58%；在抑制微脂粒氧化作用試驗，其抑制率分別為57.75與69.67%；在清除ABTS陽離子試驗，其IC50分別為0.05 ± 0.01與0.02 ± 0.00 mg/g。綜合上述研究結果：咸豐草與楓香萃取物皆具有抗氧化性。咸豐草經不同烘乾處理，以40°C烘乾過所得之葉部萃取物所表現之抗氧化活性最高，不同溶劑萃取則以甲醇萃取物之水層萃取物所表現之活性最高，且具有較高含量的總多酚，此顯示，抗氧化活性與總多酚含量間具有相關聯性。此結果有助於了解咸豐草與楓香之抗氧化性及加工方式之選擇。

關鍵詞 : 咸豐草 ; 楓香 ; 抗氧化 ; 總酚 ; 類黃酮

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