省產蘿蔔之抗氧化性研究

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摘 要

本研究以省產十字花科蔬菜中的蘿蔔（RAPHANUS SATIVUS L.）為材料，經由冷凍乾燥後，分別以甲醇、水與丙酮三種溶劑萃取其根、葉柄及葉三部位之抗氧化活性成分。本研究使用之抗氧化活性測定法，包含還原力、亞鐵離子螯合能力、DPPH自由基清除能力、抑制脂質過氧化及清除超氧陰離子能力等五種，並與BHA及Ａ-生育醇之抗氧化性做比較。結果發現：還原力方面三個部位的甲醇與水萃取物都有強的還原力，丙酮萃取物則最弱，蘿蔔根的甲醇萃取物、葉柄的甲醇萃取物與葉的水萃取物還原力最強，在樣品重對溶劑體積比值為20 MG/ML時，約為Ａ-生育醇及BHA之1.3~1.4倍。在亞鐵離子螯合能力方面，蘿蔔各部位的不同溶劑萃取物其螯合能力並不顯著，但仍以甲醇萃取物之螯合能力較強，蘿蔔根甲醇萃取物之亞鐵離子螯合能力約為丙酮與水萃取物的3倍，BHA與Ａ-生育醇則不具有亞鐵離子螯合的能力，葉柄的三種溶劑萃取物之亞鐵離子螯合能力均低於15%，蘿蔔葉甲醇萃取物之亞鐵離子螯合能力則有先升後降的趨勢。在DPPH自由基清除能力方面，亦以三個部位的甲醇萃取物之清除能力為最強，在樣品重對溶劑體積比值為20 MG/ML時，蘿蔔根、葉柄與葉的甲醇萃取物自由基清除能力分別達到96.5、96.8與104.97%，其自由基清除能力皆與BHA及Ａ-生育醇相近，蘿蔔葉的水萃取物亦有良好的自由基清除能力。在抑制脂質氧化方面，蘿蔔葉的甲醇萃取物效果較佳，為BHA及Ａ-生育醇的0.6倍，蘿蔔根與葉柄之抑制能力則僅為BHA及Ａ-生育醇的0.2倍。在超氧陰離子清除能力方面，蘿蔔根及葉柄的甲醇萃取物具有清除活性，蘿蔔葉則不具有清除活性。 在蘿蔔根、葉柄及葉的甲醇萃取物成分分析中，結果顯示蘿蔔葉的多酚類化合物含量為12.05 MG/G，為蘿蔔根與葉柄的3~4倍；蘿蔔葉中類黃酮含量為11.07 MG/G，約為蘿蔔根與葉柄的10倍；在整株蘿蔔中各部位之抗壞血酸含量均相當，約為1.06~1.2 MG/G；蘿蔔葉中類胡蘿蔔素含量則明顯多於蘿蔔根與葉柄。 綜合研究結果顯示，蘿蔔根、葉柄與葉的甲醇萃取物定量分析中，以蘿蔔葉的多酚類化合物、類黃酮及類胡蘿蔔素等成分含量較多，且又具有高的還原力、亞鐵離子螯合力、DPPH自由基清除能力與抑制脂質氧化的能力，故可將屬於農業廢棄物的蘿蔔葉加以利用，以提高其利用價值。

關鍵詞 : 蘿蔔、抗氧化性、還原力、亞鐵離子螯合力、DPPH自由基清除力、超氧陰離子。

目錄

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