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• 英文關鍵字	1,1-diphenyl-2-picrylhydrazyl (DPPH) radical; Electron spin resonance (ESR); Hydroxyl radical; Mucilage; Superoxide radical; Yam		

• 中文摘要

由臺灣產台農一號山藥、台農二號山藥與名間長紅山藥塊莖抽取其粗黏質多醣與經部分純化後之黏質多醣進行抗氧化活性分析比較。利用分光光度計方法分析 DPPH 自由基，氫氧自由基與超氧自由基之清除實驗；也利用電子自旋共振儀分析氫氧自由基之清除實驗。以 50% 清除濃度 (IC50) 顯示，台農一號山藥、台農二號山藥與名間長紅山藥多醣在清除 DPPH 自由基而言，純化前後分別爲 0.329、0.279; 0.547、0.653 和 0.847、0.631 mg/ml。在清除氫氧自由基而言，純化前後分別爲 0.668、1.146; 1.461、1.096 和 0.946、1.554 mg/ml。在清除超氧自由基而言，純化前後分別爲 0.802、0.368;0.681、0.258; 和 0.086、0.148 mg/ml。利用電子自旋共振儀分析氫氧自由基清除實驗，純化之台農一號山藥、台農二號山藥與名間長紅山藥多醣之 50%清除濃度爲 0.083、0.47、0.004 mg/ml。以上結果顯示栽培種之間與純化前後之多醣有不同抗氧化活性。

• 英文摘要

Crude mucilages (CM) and partially purified mucilages (PPM) from three different Taiwanese yam cultivars, including Dioscorea alata L. cv.Tainong 1 (TN1), Dioscorea alata L. cv.Tainong 2 (TN2), and D. alata L. var. purpurea (Roxb.) Ming-Jen (MJ), were used for evaluating the antioxidant effects, including 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical, hydroxyl radical, superoxide radical scavenging activities, and by electron spin resonance (ESR) spectrometry for hydroxyl radical scavenging activities. The IC50 stands for the concentration required for 50 % scavenging activity. The IC50 of CM and PPM against DPPH radical were 0.329, 0.279; 0.547, 0.653; and 0.847, 0.631 mg/ml, respectively, for TN1, TN2 and MJ. The IC50 of CM and PPM against hydroxyl radical by spectrophotometry were 0.668, 1.146; 1.461, 1.096; and 0.946, 1.554 mg/ml, respectively, for TN1, TN2 and MJ. The IC50 of CM and PPM against superoxide radical were 0.802, 0.368; 0.681, 0.258; and 0.086, 0.148

mg/ml, respectively, for TN1, TN2 and MJ. Using ESR to detect hydroxyl radicals, the IC50 of PPM against hydroxyl radical were 0.083, 0.47, and 0.004 mg/ml, respectively, for TN1, TN2 and MJ. The results demonstrated that different cultivars of yams exhibited different antioxidant ability, and the purification process could partially increase the antioxidant activity of the mucilage polysaccharide. Taken together, these results suggest that mucilage polysaccharides of the yam tuber might play an important role on antiradicals and antioxidants.