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• 英文摘要

Yam (Dioscorea species) is a member of the monocotyledonous family Dioscoreaceae and is a staple food in West Africa, Southeast Asia and Caribbean (Akoruda, 1984). Yam was recognized as herbal plants since the tuber dried slices were freqently used as Chinese herbal medicines. In this study, three native cultivars of Taiwanese yam were used for mucilage isolation and purification, and then for antioxidant activity assay. DPPH radicals were widely used in the model system to investigate the scavenging activities of several natural compounds. When DPPH radical was scavenged, the color of the reaction mixture changes from purple to yellow with decreasing of absorbance at wavelength 517 nm. Figure 1A shows the scavenging activity against DPPH radicals of CM from TN1, TN2 ,and MJ yam cultivars. It was found the dose-dependent DPPH radical scavenging activities of CM from three native yam cultivars. The order of DPPH scavenging activity was TN1 > TN2 > MJ. The IC50 of CM against DPPH radical were 0.329, 0.547, and 0.847 mg／ml, respectively, for TN1, TN2 and MJ cultivars. After being purified with SDS and heated at boiling water, the PPM of three yam cultivars was again assayed for 7 antioxidant activity. Figure 1B shows the scavenging activity against DPPH radicals of PPM from TN1, TN2 ,and MJ cultivars. It was found that the DPPH radical scavenging activities of PPM was better than those of CM from three native yam. The IC50 of PPM against DPPH radical were 0.279, 0.653, and 0.631 mg／ml, respectively, for TN1, TN2 and MJ cultivars. Our previous study reported (Hou et al., 2002) that PPM from Japanese yam also exhibited DPPH scavenging activity, and the IC50 of PPM against DPPH radical was 0.86 mg／ml which was similar to the report of Lai et al. (2001) for Hsian-tsao leaf gum and higher

than those of PPM from TN1, TN2 ,and MJ cultivars. Figure 2 showed the scavenging activity against hydroxyl radical from CM (A) and PPM (B) of TN1, TN2, and MJ yam cultivars. Similar to the results of Figure 1, it was found the dose-dependent hydroxyl radical scavenging activities of CM from three native yam cultivars. The order of hydroxyl radical scavenging activity was TN1 > MJ > TN2 (Figure 2A). The IC50 of CM against hydroxyl radical were 0.668, 1.461, and 0.946 mg／ml, respectively, for TN1, TN2 and MJ cultivars. Figure 2B shows the scavenging activity against hydroxyl radicals of PPM from TN1, TN2 ,and MJ cultivars. The lower hydroxyl radical scavenging activities of PPM was found than those CM from three native yam. The IC50 of PPM against hydroxyl radical were 1.146, 1.096, and 1.554 mg／ml, respectively, for TN1, TN2 and MJ cultivars. Previuosly, we reported that the tuber storage protein, dioscorin, exhibited hydroxyl radical scavenging activity (Hou et al., 2001b). The dioscorin should be removed during SDS and heating treatments and resulted in lesser hydroxyl radical scavenging activity of PPM in three native yam cultivars.