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A Study on Development of Whitening Effect of Natural Product using Proton Beams

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We have studied the radiolysis of various natural resources and have evaluated the antioxidant and the B16 cell inhibitory activity of radiolysis products when using a proton beam. Proton-beam-induced both in the antioxidant assay and the B16 cell assay by a dose dependent fashion. Therefore, we considered the free radical scavenging activitiy change caused by proton beam irradiation to be due to the destruction of molecules in the samples. Because of Chemical bonds can be broken and molecules are disintegrated into fragments that may escape from the surface or recombine to form new species.

These results was expected that *ACL, LJT* of EtOAc extract to be useful for the development of cosmetic materials and de-pigmenting agents for hyperpigmentation.

Key words: Proton beam, whitening effect

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Antioxidant Activity from functional compounds in various cultivars of Yuza (Citrus junos Seib ex TANAKA)

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This study was conducted to investigate of characteristics and antioxidant activity in various cultivars of Yuza. The hot-water extracts of Yuza cultured in Geoje, Goseong, Goheung and Namhae (Changseon, Seolcheon, Namhae and Namhae No. 1) were tested antioxidant activity. Contents of total phenolics and flavonoids were 122.18±1.44 mg/100 g and 114.39±0.94 mg/100 g in hot water extracts from Yuza cultured in Seolcheon, respectively. The highest contents of hesperidin and naringin were 55.45±1.36 mg/100 g and 28.41±0.64 mg/100 g in hot water extracts from Yuza cultured in Geoje, respectively. Antioxidant activity of Yuza peel extracted with hot-water were significantly increased in adding 500～10,000 μg/mL concentration to reaction mixtures. Reducing power was increased 6～9 folds higher in adding 10,000 μg/mL concentration to them. ABTs scavenging activity, adding 10,000 μg/mL concentration to them, was more than 80% excepting Goseong Yuza. Hydroxyl radical scavenging activity was higher in Yuza cultured in Namhae-No. 1(36.59±0.48%), Namhae-seolcheon(31.36±1.36%) and Namhae-changseon (30.28±1.60%) adding 10,000 μg/ mL concentration to them, others samples were below 30%. Adding 10,000 μg/mL concentration to them, scavenging activity of NO radical and β-carotene were 26.49±1.77～41.53±1.60% and 24.40±1.91～39.14±0.57%, respectively.

Key words: Yuza, ABTs scavenging activity, NO radical scavenging activity, β- carotene scavenging activity