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땅콩껍질 메탄올 추출물의 항산화활성 측정

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Antioxidant activities of Peanut(*Arachis hypogaea* L.) skins Methanol extract of different color

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실험목적 (Objectives)

Peanut (*Arachis hypogaea* L.) is one of the cash crops providing highly nutritious human food. It has been grown for use not only as snack food and cooking oil, but also as material for the production of soap and machine oil. In addition, by-products of the peanut seed have been used as feed and fertilizer. Although Peanut skins are treated as waste products from peanut processing, six A-type, five oligomeric proanthocyanidins, and flavonoids have been isolated and investigated for use as cheap and easily available source of functional ingredients and dietary supplements [Lou et al., 2001; Huang et al., 2003; Lou et al., 2004]. however, little information is available so far on the peanut skin activities.

재료 및 방법 (Materials and Methods)

○ 실험재료

Three different skin color of peanuts of pink skin cv. Daekwang, purple skin cv. Jakwang, black skin cv. Hukwhasaeng

○ 실험방법

■ Peanut extract : 10g of peanut seeds were sonicated with 200ml of MeOH and EtOH for 1hr. For peanut skins, 1.5g of sample and 50ml of solvent were applied.

■ Physicochemical analysis

- Lipid and protein : Automatic soxhlet(Buchi B-811) and Kjeldahl(Buchi 339).
- color & color difference : Minolta chromameter CR-200(Minolta Co., Japan)

■ Total phenol content. : Folin-Ciocalteau method

■ DPPH radical scavenging activity. : Blois, M.S.1985

■ Trolox equivalent antioxidant capacity : Pellegrini R.R 1999, *26,* 1231-1237

실험결과 (Results)

Characteristics such as lipid, protein, and moisture content from three color peanut(Arachis hypogaea L.), Daekwang, Jakwang, Hukwhasaeng, were analyzed. Three peanut skin extracts were to investigate antioxidant activities including total

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phenolic contents, 1,1-diphenyl-2-picrylhydrazyl (DPPH) and ABTS radical activities to different solvents and part.

Among peanut skin extracts, black peanut skin showed the highest total phenolic content (17.4±0.5mg/g) in the 70% MeOH extract. The peanut skins with pink and purple color exhibited higher DPPH radical scavenging activities than other skins and Trolox in 70% MeOH. DPPH and ABTS radical scavenging activities of skins with purple, pink and black with IC_{50} values were 1.6, 1.9, 2.1 and 3.9, 4.2, 4.5㎍/㎖, respectively. Peanut with purple skin showed the highest ABTS radical (IC_{50}.=21.5㎍/ml).

* 시험성적

Table 1. Color values of three peanut cultivar.

Cultivar	Color value		
	L	a	b
Pink skin cv. Daekwang	39.0±3.5	9.0±0.6	16.4±0.3
Purple skin cv. Jakwang	34.0±2.8	11.9±1.4	9.4±0.6
Black skin cv. Hukhwasaeng	27.0±2.2	7.1±0.5	4.1±1.2

Table 3. Total phenolic contents of three peanut seed in different extraction solvents.

Seed with skin of Peanut	Extraction solvent	Total phenolic content(㎎/g)[1)]
Daekwang	70% MeOH	9.2±1.39a
	70% EtOH	9.6±0.68a
Jakwang	70% MeOH	7.6±0.36b
	70% EtOH	8.6±0.46ab
Hukhwasaeng	70% MeOH	8.5±0.76ab
	70% EtOH	9.8±1.11a

Table 4. Total phenolic contents of three peanut skins in different extraction solvents.

skin of Peanut	Extraction solvent	Total phenolic content(㎎/g)[1)]
Daekwang	70% MeOH	17.0±0.30ab
	70% EtOH	15.8±1.36bc
Jakwang	70% MeOH	15.8±0.61bc
	70% EtOH	14.9±0.75c
Hukhwasaeng	70% MeOH	17.4±0.48a
	70% EtOH	16.6±0.39ab

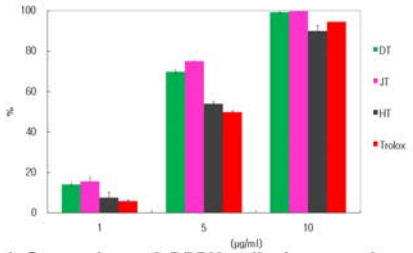

Fig. 1. Comparison of DPPH radical scavenging activiteis of the MeOH extracts of peanut skins.

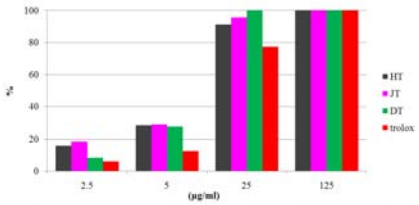

Fig. 2. ABTS Inhibition activities of the MeOH extracts of peanut skins. DT, 'Daekwang'; JT,'Jakwang'; HT, 'Hukhwasaeng'.