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Comparison of Seed Quality of Black Skin Peanut 'Heuksaeng' by Harvesting Time

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[Introduction]

Major of peanut products like roasted and boiled peanuts contain testa (skin), which has plenty of functional components including catechin, proanthocyanins, and trans-resveratrol. Black skin peanut cultivar, 'Heuksaeng' shows rapid discoloration of skin while harvesting time is delayed while average yield and kernel size increase. This study was conducted to compare the composition and functional properties of peanut by different harvesting time in black skin peanut 'Heuksaeng'.

[Materials and Methods]

Dried seeds of 'Heuksaeng' were collected from 12 plants harvested from 70 to 110 days after flowering (DAF) interval of 10 days. Peanut anthocyanins; cyanidin-3-O-sambubioside (Cy-samb) and cyanidin-3-O-sophoroside (Cy-soph) were analyzed with HPLC from the extracts of peanut skin in 20% of MeOH with 0.1% HCl. DPPH and ABTS radical scavenging activity was assayed by using diluted skin extracts and the absorbances were obtained at 520nm and 735nm, respectively. Crude fat, crude protein and fatty acid composition were analyzed by Soxhlet, dumas combustion method, and gas chromatography, respectively.

[Results and Discussion]

A total amount of anthocyanins was highest in the seeds harvested on 70 DAF (12.67mg/g), showing 7.60 of Cy-soph and 5.07mg/g of Cy-samb from peanut skin. Anthocyanin contents were gradually decreased by the harvesting time, which recording the lowest on 110 DAF (Cy-soph:1.06, Cy-samb:0.89mg/g). From the assessments of antioxidant activities, both of DPPH and ABTS scavenging was significantly lower at the peanut skin of 110 DAF, and there was no significant difference on the rest of four samples. Crude fat contents and fatty acid composition had no significant change by the harvesting time, while crude protein showed gradual decrease by the delayed harvesting time. Based on the results, 'Heuksaeng' showed the deterioration of seed quality while harvesting time was delayed.

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