

P208

Study on functional improvement of peanut sprouts by LEDs

So-Hee Shin^{1)*}, So-Ra Choi¹⁾, Eun-Ju Song¹⁾, Young-Eun Song¹⁾, Min-Kyung Choi¹⁾, Hyun-Ah Han¹⁾, Ki-Kwon Lee¹⁾, In-Sok Lee¹⁾ and Nam-Jin Chung²⁾

¹⁾ *Division of Agri-food Development, Jeollabukdo Agricultural Research and Extension Services, Iksan 54591, Korea*

²⁾ *Department of Crop Science and Biotechnology, Chonbuk National University, Jeonju 54896, Korea*

Abstract

The research was carried out to investigate a total polyphenol content, antioxidant activity, amino acid and resveratrol content of peanut sprouts (cotyledon, epicotyl, leaf, hypocotyl, root), in different light (white, blue, red, F-red, UV-A, UV-B, UV-C) conditions for 24 hours. Peanut seeds were sown on a 27.5x15.9x13 cm tray and grown at the 25°C under the dark condition for 14 days. Total polyphenolic contents of epicotyl and leaf were about 288mg GAE/100g in blue light. The DPPH radical scavenging of cotyledon and hypocotyl were 1.3~1.5 times (63%) and 2 times (40%) compared to control (43%, 19%), respectively. As to ABTS activity, its activity was increased by all LEDs treatment, Especially, the highest ABTS activity of the hypocotyl and leaf was shown as 99.1% in blue light. The essential amino acid content of hypocotyl and leaf was increased 1.9 times in the UV-B, 1.6 times in red, and 1.5 times in F-red, respectively. The non-essential amino acid content was increased by all LEDs treatment in hypocotyl and leaf. The content of resveratrol was increased by 1.3 times in UV-B compared to that of other tissues. Assessing inclusively, this study showed that there was a significantly positive effect between increase of physiological substance activity and LED light treatment, resulting in stably producing peanut sprouts. Therefore, a material treated with LEDs is thought to be useful as a functional food resources.

Keywords: peanut sprout, LEDs, amino acid, resveratrol

Corresponding author*

Nam-Jin Chung

Address : 413 Seodong-ro, iksan, jellabuk-do, 54591, Republic of Korea.

Tel and Fax : 82-63-290-6046

E-mail : sohee1012@korea.kr