

**Title** Effect of light emitting diode irradiation on the growth and functional components of radish sprouts (*Raphanus sativus* L.)

**Author** Byeong-Sam Kim, Hye-Ok Lee, Ji- Young Kim

**Citation** Abstracts of 7<sup>th</sup> International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

**Keywords** radish; LED

### **Abstract**

This study was aimed to analyze the effect of the light-emitting diode (LED) light source in plant factories with respect to increasing and selectively regulating the growth and development of vegetable and garden fruit plants and the content of functional components. Therefore, the effect of the LED light source on radish sprout (*Raphanus sativus* L.) growth and on functional components was analyzed using different wavelengths (385 nm, 470 nm, 525 nm, and 630 nm) for LED treatment during radish sprout cultivation and harvest. The lengths and thicknesses of the hypocotyls in both the comparison and processed groups tended to increase during radish sprout growth after LED treatment. LED treatment involving the 385 nm scope resulted in the greatest increase in hypocotyl length and that involving the 470 nm scope resulted in the greatest increase thickness. On the fourth day of growth after LED treatment, the total vitamin C and total phenol content were 27.08 mg/100 g and 116.41 mg/100 g, respectively, for the comparison group and 28.65 - 37.75 mg/100 g and 117.91 - 145.15 mg/100 g, respectively, for the processed group. On the sixth day of growth, the total vitamin C and total phenol content were 18.30 mg/100 g and 94.12 mg/100 g, respectively, for the comparison group and 22.94 - 36.55 mg/100 g and 92.25 - 114.83 mg/100 g, respectively, for the processed group. The vitamin C and total phenol content on the fourth and sixth days of growth after LED treatment were higher in the processed group than in the comparison group. Therefore, it was concluded that LED treatment affects radish sprout growth and increase functional components.