

**PA-148**

## Effect of Light Emitting Diode Irradiation on Functional Properties of a Purple-Colored Wheat 'Arriheuk' Wheatgrass

Dea-Wook Kim<sup>1\*</sup>, Kyeong Hoon Kim<sup>2</sup>

<sup>1</sup>Crop Production & Physiology Div., NICS, Wanju, Jeonbuk 55365, Republic of Korea

<sup>2</sup>Wheat team, NICS, Wanju, Jeonbuk 55365, Republic of Korea

### [Abstract]

This study was aimed to evaluate the antioxidant activity and bioactive property of extracts from a purple-colored wheat variety 'Arriheuk' (*Triticum aestivum* L.) wheatgrass, affected by light emitting diode irradiation (LED). The wheatgrass was cultivated for 10 days after sowing in a growth chamber under the following LED conditions: R1B1 (Red:Blue = 1:1), R7B3 (Red:Blue = 7:3), and R3B7 (Red:Blue = 3:7). We examined antioxidant activity of the hot water extracts of wheatgrass using DPPH and ABTS free radicals scavenging assays. At the concentration of 10,000  $\mu\text{g/ml}$ , the extract from R1B1 showed the highest DPPH free radical scavenging activity(79.29%), but its ABTS free radical scavenging activity was the lowest(32.0%). To evaluate bioactive property of the wheatgrass, we examined the change of natural killer (NK) cell activity affected by the wheatgrass extracts in vitro. At the concentration of 500 $\mu\text{g/ml}$ , NK cell activity was most highly enhanced by the extract from R1B1(181.6%), and the activity was 176.1% (R7B3) and 144.6%(R3B7), respectively. These results suggest that the functional property of 'Arriheuk' wheatgrass would be enhanced by LED irradiation condition.

### [Acknowledgement]

This work was carried out with the support of "R&D Agenda Agriculture and Technology Development Program (Project No PJ016031012022)" of the Rural Development Administration, Republic of Korea.

\*Corresponding author: E-mail, dwkim08@korea.kr Tel, +82-63-238-5274