

## PC-3

**Quality and Physicochemical Characteristics of Jack Bean (*Canavalia ensiformis*) according to Different Roasting Conditions**You-Jin Park<sup>1\*</sup>, Eom-Ji Hwang<sup>1</sup>, Tae Joung Ha<sup>1</sup>, Yeong-Hoon Lee<sup>2</sup>, Gyeong-Dan Yu<sup>1</sup>, JaeHee Jeong<sup>1</sup>, Sehee Kim<sup>1</sup><sup>1</sup>Bioenergy Crop Research Institute, National Institute of Crop Science, RDA, Muan 58545, Korea<sup>2</sup>Div of Planning & Coordination, National Institute of Crop Science, RDA, Wanju 55365, Korea**[Introduction]**

Jack bean (*Canavalia ensiformis*) is an annual vine legume plant originated from tropical regions in Southeast Asia. Jack bean is growing interest as a health food, because of its antioxidant and anti-inflammatory effects. In Korea, Jack bean is predominantly consumed as an leached tea. To increase the consumption of Jack beans, it is necessary to develop optimal processing technology for manufacturing high-quality tea. In this study, the quality and physicochemical properties of Jack bean tea according to roasting conditions were evaluated.

**[Materials and Methods]**

Jack beans were collected from a farm in Iksan, Jeonbuk, and cultivated at the Bioenergy Crop Research Institute in Muan, Jeonnam. The pods of Jack beans were sampled with a diameter of less than 2 cm, and dried at 60°C for 30 hours before roasting. The roasting conditions were temperatures (100, 120, 150 and 200°C) and times (0.5, 1, 2 and 3 h) as variables. The color, weight loss rate, and moisture contents of roasted Jack bean pods were analyzed. Also, antioxidant components and activities of roasted Jack bean pods extracts were evaluated.

**[Results and Discussion]**

As the roasting temperatures and times increased, the rightness of roasted Jack bean pods decreased. Redness increased up to 120°C as the roasting times increased, but decreased above 150°C. There was no significant difference in yellowness from 100°C to 150°C as the roasting time increased, but decreased at 200°C. The weight loss rate was the highest at 53.4% in 200°C for 2 hour and the lowest at 12.3% in 100°C for 1 hour. The moisture content of the 100~120°C treatment was 2.0~2.6%, and the 150~200°C treatment was 1.3~1.9%. The antioxidant components and activities of roasted Jack bean pods extracts were generally increased with the roasting temperatures and times. Total flavonoid content of roasted Jack bean pods extracts was 284.3~297.1 mg CAE/100g when roasted at 200°C. The total polyphenol content was the highest at 2,026.2 and 2,048.7 mg GAE/100g in roasting at 150°C for 1 and 2 hours, respectively. ABTS radical scavenging activity increased with increased roasting temperatures and times, and decreased at 200°C for 1 and 2 hours. The results of this study, it was confirmed that there were differences in the quality and physicochemical characteristics according to roasting temperatures and times of Jack beans tea. These results can be used as basic data for processing high quality Jack beans tea.

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