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**Fast systemic evaluation of amylose and protein contents in collected rice landraces germplasm using near-infrared reflectance spectroscopy(NIRS)**

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**Abstract**

This study was conducted to characterize the amylose and protein contents of 4,948 rice landrace germplasm using the NIRS model developed in the previous study. The amylose contents estimated by NIRS in the standard rice were Sinseonchal (6.881%) 4.994%, Chucheong (19.731%) 18.633%, Goami (23.246%) 20.548%. Protein contents were Sinseonchal (6.890%) 6.824%, Chucheong (6.350%) 6.869%, Goami (6.777%) 7.839%. The NIRS analysis showed that 1.1-2.7%point lower in amylose and 0.4-0.6%point higher in protein than standard contents. The average amylose content of the germplasm was 20.39% with a range of 3.97-37.13%. The average protein content was 8.17% with a range of 5.20-17.45%. Amylose contents with a range of 20.06-27.02% represented 62.20% of the germplasm. Protein contents with a range of 6.78-9.75% represented 81.60% of the germplasm. Korean landrace comprised 24.9% among the 4,948 germplasm collected from 41 countries. A specific range of amylose contents showed in Korea 16.58-20.06%, in Japan 20.06-23.25%, in North Korea 23.25-27.02% and in China 27.02-37.13%. Protein contents exhibited 5.20-17.45% evenly in the whole landraces, whereas Chinese landrace particularly observed with 6.78-8.27% and 9.75-17.45%. Fifty resources were selected with low and high amylose ranging from 3.97-6.66% to 30.41-37.13% respectively. Similarly fifty resources were selected with low and high protein ranging from 5.20-6.09% to 13.21-17.45% respectively. Landraces with higher protein should be adapted to practical utilization of food sources.

Key words: NIRS, Rice Landrace Germplasm, Amylose, Protein

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