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Genome-wide association study of amino acids in core collection of wild soybean  
(*Glycine soja*)

*Woon Ji Kim\**, Chonnam National University, Gwanju, Republic of Korea

*Juhyun Im*, Chonnam National University, Gwanju, Republic of Korea

*Sanghun Kim*, Chonnam National University, Gwanju, Republic of Korea

*Ju Seok Lee*, Seoul National University, Seoul, Republic of Korea

In this study, we conducted a genome-wide association study (GWAS) between genetic variation and amino acid contents in core collection of wild soybean. The 203 accessions were used for analyzing amino acids with an amino acid auto-analyzer (S433-H, SYKAM). The total amino acid contents of 203 accessions ranged from 32,896 to 53,251 (mg/100g). The content of cystine was 222.79 ~ 756.63(mg/100g) and the content of methionine was 339.12 ~ 734.81(mg/100g). The correlation between cystine and methionine was  $r = 0.293^{**}$ , and the 17 amino acids showed highly significant and positive correlation with each other. By GWAS with 130K SNP genotyping data, AX-90330677 SNP marker showed significant association with three amino acids such as glutamic, leucine, and phenylalanine. The AX-90330677 was located in 47,702,857 bp of chromosome 9. Four genes, Glyma.09g257300, Glyma.09g258000, Glyma.09g249100, and Glyma.09g250700, associated with amino acids were identified near the genetic region of AX-90330677. Our results will help us to understand the genetic basis of amino acid biosynthesis in soybean seeds.