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The effect of the chemical components and glyoxylate cycle-related gene expression on sprouting speed of soybean seed [*Glycine max* Merr (L.)]

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Sprouting speed of soybean [*Glycine max* Merr (L.)] seed is various among genotypes. It has been known that the contents of lipid and sugars were changed in the germination process and several enzymes relating to glyoxylate cycle were also activated during germination of oil seeds. These factors seemed to be associated with energy distribution mechanism in soybean seed. To determine important factors for sprouting speed of soybean seed, four genotypes with different chemical composition and sprout characteristics, '*Pungsannamul*', '*Wonheug*', '*S04* (low saturated fatty acid, SFA)' and '*S11* (high SFA)', were grown for soybean-sprout in dark chamber for five days with 20°C air condition and irrigating water 3 minutes per every 4 hours. Sprout characteristics, amounts of chemical components (lipid, fatty acid and sugar) and the level of gene expression (*ICL: isocitrate lyase enzyme gene*) of cotyledon were investigated during the sprouting process. Sprout length of '*Wonheug*' was 20.1cm and much higher than other genotypes. Lipid and sugar contents in seed were different among soybean genotypes, but significant variation of their contents during sprouting process was not observed. The fatty acid composition was also not changed during sprouting process. The level of *ICL* gene expression of '*Wonheug*' was highest with a value of 15.76($p<0.01$) in 1-day old sprout as compared to that of '*Pungsannamul*(2.66)', '*S04*(1.82)', and '*S11*(1.10)'. These results showed that the contents of lipid and sugar and the composition of fatty acid were not major factors to determine sprouting speed of soybean. The level of *ICL* gene expression might be related to the sprouting speed in soybean.