

## Effect of Cultural Location on the Isoflavone Content and Distribution in Vegetable Soybean Varieties and Its Seed Tissue

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### Summary

For developing vegetable soybean in Taiwan, the influence of cultural location on the isoflavone contents and distribution in vegetable soybean varieties were investigated. The isoflavone contents and distribution in 21 vegetable soybean varieties sowed in fall were analyzed, and eight of 21 vegetable soybean varieties with taro flavor were further divided into hypocotyls and cotyledons, and the contents and distribution of isoflavone also were analyzed. For evaluating the change of ISF distribution, twelve ISF in whole seeds and seed tissues were quantified by HPLC and sorted into seven ISF groups consist of TDin, TGlin, TGIN, MalGly, Gly, AceGly and AGly. Results showed that: Total isoflavone contents of vegetable soybean were significantly affected by cultural location and genotype. For the order of proportion of TDin, TGlin and TGIN, vegetable soybean varieties grown at the two location were in a same type of ISF distribution as TGIN>TDin>TGlin. On the other hand, the order of proportion of MalGly and Gly in vegetable soybean varied at various cultural locations. The isoflavone contents were higher in vegetable soybean grown at Wan-Tan than at Mei-Nung, which also were accompanied with increasing in proportion of TGIN and decreasing in proportion of TDin and TGlin. Higher isoflavone contents were concentrated in hypocotyles, and glycitein and its three derivatives were almost existed in these seed tissue. The isoflavone distribution in whole bean was similar to that in cotyledon, but different from that in hypocotyle. In whole bean and cotyledon, the proportion of TDin, TGlin, and TGIN was in the order of TGIN>TDin>TGlin. In hypocotyls, that was in a type of TDin> TGlin> TGIN. Accumulation of isoflavones in cotyledon and whole bean were higher for soybean grown at Wan-Tan than at Mei-Nung, but in hypocotyls that was on the opposite tendency.

Keywords: Vegetable soybean; Isoflavone; Cultural location; Hypocotyls

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