P010

Varietal and qualitative characteristics variation of rutin and quercetin in tartary buckwheat (*Fagopyrum tataricum*)

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Abstract

Buckwheat has gained scientists concern due to its nutritional and medicinal values in recent years, and many important bioactive compounds. The present study was performed to investigate the influence of the varietal performance and environmental conditions on the content of rutin and quercetin in Tartary buckwheat germplasm. A total of 44 foreign Tartary buckwheat germplasms were examined and compared their contents based on the collected countries, seed shape, and seed color. The highest number of germplasm (16) was found in ranged from 600 mg/100 g to 800 mg/100 g of rutin content. In case of quercetin content, the highest number of germplasm (19) was observed in ranged from 5 mg/100 g to 10 mg/100 g. However, the rutin content showed the highest value (1326.6 mg/100 g) from CBU408 and quercetin content showed the highest value (22.5 mg/100 g) from CBU456. The number of germplasm showed the highest value (23) in ranged from 3000 mg/100 g to 4000 mg/100 g of rutin content. The number of germplasm is the highest value (30) in ranged from 100 mg/100 g to 200 mg/100 g of quercetin content. When rutin and quercetin content in seed was compared according to collected countries, seed shape, and seed color respectively, no association was appeared with rutin and quercetin content. In sprout of whole Tartary buckwheat germplasm, mean of rutin content and quercetin content was 3362.9 mg/100 g and 14.2 mg/100 g respectively. In conclusion, the results observed from the present study suggest that highly rutin germplasm could be used more efficiently via breeding to develop a highly rutin content variety for using in sprout. No correlation was appeared in the case of quercetin. However, the quercetin content in sprout was 4~90 times more than seed. So, sprout could be used more efficiently than seed in the case of quercetin. Our results suggest that the varietal variation and qualitative characteristic differences of rutin and bioactive compounds may provide important nutrient sources and industrial application of Tartary buckwheat.

Keywords: rutin, quercetin, buckwheat, sprout, qualitative characteristics

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