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Antioxidant and Rutin Content Analysis of Flowers of the Common Buckwheat (*Fagopyrum esculentum* Moench.) and CoffeeSun-Hee Woo^{1*}, Soo-Jeong Kwon¹, Moon-Soon Lee², Cheol Ho Park³¹Dept. of Crop Science, Chungbuk National University, Cheongju 28644, Korea²Dept. of Industrial Plant Science & Technology, Chungbuk National University, Cheongju 28644, Korea³Dept. of Bio-Health Technology, Kangwon National University, Chuncheon 24341, Korea**[Introduction]**

Both the plant and seed of common buckwheat contain proteins, carbohydrates, lipids, fibers, vitamins, amino acids, and minerals, making it a nutritious food source. Additionally, common buckwheat is rich in rutin and quercetin, which act as antioxidants. Rutin has been found to have antioxidant and blood vascular reinforcement properties, making it a topic of interest in functional food development. This study aims to suggest a proper method for harnessing the functional benefits of both buckwheat and coffee as a favored food choice.

[Materials and Methods]

This study verified content in total polyphenol, total flavonoid, and rutin, and DPPH radical scavenging activity under different concentrations of mixture of buckwheat (B) and coffee (C). A total of 9 grams of a commercial coffee brand 'Kanu' was blended with a hot water extract of dried buckwheat flowers. For the extraction, 3 grams of dried buckwheat flowers were mixed with 300 mL of hot water at 100 degrees Celsius and extracted for 10 minutes, resulting in a beverage called Buckwheat Americano. The blending ratios for the different samples were as follows: buckwheat only (B100), a mixture of 80% buckwheat and 20% coffee (B80+C20), a mixture of 60% buckwheat and 40% coffee (B60+C40), a mixture of 40% buckwheat and 60% coffee (B40+C60), a mixture of 20% buckwheat and 80% coffee (B20+C80), and coffee only (C100).

[Results and Discussion]

The total polyphenol content ranged from 0.88 to 2.49 mg/mL TAE, while the total flavonoid content ranged from 0.60 to 0.93 mg/mL RUE. The highest TP content (2.49 mg/mL TAE) and TF content (0.93 mg/mL RUE) were found in coffee only. The highest DPPH free radical scavenging activity was observed in coffee only with 83.5%, followed by B20+C80 with 81.8% and B40+C60 with 80.7% at the concentration of 1 mg/mL. A mixture of 40% buckwheat and 60% coffee showed proper rutin content compared to other treatments, along with better taste and flavor. Therefore, B40+C60 may be recommended as a recipe for Buckwheat Americano. Further studies in this field will be vital to fully understand the potential of this plant.

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