

Comparison of Antioxidant Activities by Different Extraction Temperatures of Branches from *Stewartia pseudocamellia* Maxim.

Hye Soo Kim¹, Min Jeong Park¹, Soo Jeong Kim¹, Bu Kyung Kim¹, JunHo Park², DaeHyun Kim² and Soo Jeong Cho^{1*}

¹ Department of Pharmaceutical Engineering, Gyeongnam National University of Science and Technology, 33 Dongjin-ro, Jinju 52725, Korea

² Forest Research Department, Gyeongsangnam-do Forest Environment Research Institute, 386 Sumokwon-ro, Jinju 52615, Korea

This study was carried out to evaluate antioxidant activities of branches from *Stewartia pseudocamellia* Maxim. The dried branches of *S. pseudocamellia* were extracted at different temperatures (25°C and 80°C) using 70% ethanol and extracts were evaluated for extraction yield and antioxidant activity. The total polyphenol content in the dried branches extracts of *S. pseudocamellia* was 133.22±0.83 mg of gallic acid equivalents/g and 53.18±0.2 mg of gallic acid equivalents/g in 25°C and 80°C, respectively. The total flavonoids content in the dried branches extracts of *S. pseudocamellia* was 9.9±0.3 mg of quercetin equivalents/g and 4.7±0.1 mg of quercetin equivalents/g in 25°C and 80°C, respectively. The branches of *S. pseudocamellia* extracted at 25°C showed higher 1,1-diphenyl-2-picrylhydrazyl (DPPH) and 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) radical scavenging activities than dried branches of *S. pseudocamellia* extracted at 80°C. The toxicity of dried branches extracts from *S. pseudocamellia* was investigated using WST-1 (Water Soluble Tetrazolium salt) assay on the mouse macrophage cell line RAW 264.7. These results suggested that dried branches extracts of *S. pseudocamellia* could be used as a potential source of functional material in cosmetics as well as in foods when extracted at low temperatures.

Key words: Antioxidant activity, Dried branches, Extraction temperature, *Stewartia pseudocamellia* Maxim.