

PC-031

Resposes of Anti-inflammatory and Antioxidant on Adventitious Root Extracts According to *Platycodon grandiflorum* Flower Colors

Soo-Jeong Kwon¹, Yong-Hwan Ju², Hag-Hyun Kim¹, Sun-Hee Woo², Hee-Ock Boo^{3*}

¹Dept. of Food Nutrition and Cookery, Woosong College, Daejeon 34606, Korea

²Dept. of Crop Science, Chungbuk National University, Cheog-ju 28644, Korea

³AGROLEAD Co, Ltd., Sinsan-ro 9, Jeju-si 63265, Korea

[Introduction]

The *Platycodon grandiflorum* (PG) that belongs to the Campanulaceae family have been used as a food material and a traditional oriental medicine. The PG root have beneficial source of anti-inflammatory agents. This experiment was carried out to identify the difference in the anti-inflammatory and antioxidant activity of *in vitro* cultured PG adventitious root according to flower color and flower shape, including the green petal flower.

[Material and Method]

Adventitious root samples of different PG flower colors were provided by the cooperative research laboratory of this study, Woosong Information College. *In vitro* cultured adventitious root samples were freeze dried and ground to a fine powder. The powder was stored at -20°C, and used further for the analysis of DPPH radical scavenging activity, ABTS radical cation (ABTS•+), nitrite scavenging ability (NSA) and evaluation of anti-inflammatory activity.

[Result and Discussion]

The DPPH and ABTS radical scavenging activity from *in vitro* cultured PG adventitious root extract showed that the increase was proportional to the concentration. As a result of measuring the DPPH and ABTS radical scavenging activity, it was confirmed that the PG extract of double petal purple color had the highest activity. The nitrite scavenging effect was the highest at pH 1.2 in all samples tested. However, there was no distinct detection of nitrite scavenging effects of the pH range 6.0. NO production tended to be more decrease in the sample of green flower and white flower of semidouble petal than the other samples at all concentrations treated with PG extract. The dose-response trends followed quadratic regressions in all tested PG adventitious root extracts. The PG adventitious root extracts showed an enhanced anti-inflammatory response in an LPS-stimulated macrophage example following cure with PG adventitious root extracts through reductions in inflammatory mediators IL-6, TNF- α and IL-1 β production or a reduction in the expression of NO. The anti-inflammatory responses were influenced by the dose-dependent manner and most of the studied extracts have potential activity. This study indicates that bioactive molecule present in PG adventitious root could be helpful for the development of new drugs and /or as a source of basic medicine in the treatment of some diseases.

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*Corresponding author: Tel. *** - **** - ****

E-mail, swboo@hanmail.net