

## Improvement of Bronchial Immune Hypersensitivity Reaction by Extracts from *Chrysanthemum morifolium* and *Scutellaria baicalensis*

Kyoung won Cho<sup>1</sup>, Sung Sun Park<sup>1</sup> and Hak Joo Choi<sup>2\*</sup>

<sup>1</sup>R&D center, Chong Kun Dang Healthcare Corporation, Seoul, Republic of Korea

<sup>2</sup>Traditional and Biomedical Research Center(TBRC-RIC), Daejeon University

This study aimed to discover functional materials derived from resources, which can improve the troublesome symptoms of a bronchus by improving bronchial hyperresponsiveness as air pollution in Korea caused by fine dust and yellow dust is getting worse. Of natural resources grown naturally in Korea, *Chrysanthemum morifolium*(CM), and *Scutellaria baicalensis*(SB) have been used as a safe raw material for drinking or medicine for a long time, and it has been found that a combination of CS73 can improve bronchial health function in experimental animal models. Analysis of serum of animal models with asthma induced by ovalbumin (chicken egg albumin) and analysis of cytokine production in BALF (Bronchoalveolar lavage fluid) showed that inflammatory indices IL-1 $\beta$ , IL-4, IL-5, IL-6, IL-10, IL-13, IL-17A, IL-17F, and IL-17E were significantly reduced and that respective production of IL-2 and IFN- $\gamma$  was significantly increased in the group taking extracts from CS73 when compared with the control group. These results suggested that the combination of CS73 could be used as a natural treatment for asthma. In addition, in the animal models that the combination of CS73 significantly decreased the respective production of IgE, histamine and TSLP when compared with the control group. In experimental models, the ratio of *Chrysanthemum morifolium* to *Scutellaria baicalensis* of 7 : 3 had more excellent effect than other combined experimental groups, which suggests that the above combination can be developed as a natural treatment for asthma and is valuable as a pharmaceutical composition with an effect of improving bronchial health, capable of contributing to the public health threatened by fine dust.

**Key words:** *Chrysanthemum morifolium*; *Scutellaria baicalensis*; herbal combination; bronchial health

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\*(Corresponding author) E-mail: hjchoi@dju.kr, Tel: +82-42-280-2830