

**Protoaetia brevitarsis extract ameliorates the severity of DSS-Induced Ulcerative Colitis in vivo**  
**금벙이 추출물의 DSS유도 궤양성 대장염 조절효능 탐색**

Bog-Im Park<sup>1</sup>, Yong-Deok Jeon<sup>1</sup>, Hyeon-Jae Sim<sup>2</sup>, Hoon-Yeon Lee<sup>2</sup>, Seong-Oh Kim<sup>2</sup>, Dong-Keun kim<sup>2</sup>,  
 Mi-Na Jo<sup>2</sup>, Yong-Jin Cho<sup>3</sup>, Chong-Tai Kim<sup>3</sup>, Tae-Eun Kim<sup>3</sup>, Jong-Sik Jin<sup>1</sup>

<sup>1</sup>Department of Oriental Medicine Resources, Chonbuk National University, 79 Gobongro, Iksan,  
 Jeollabuk-do, South Korea

<sup>2</sup>Research Institute, Wonkwang herb Co., Ltd, Jinan-gun, Jeonbuk, Korea

<sup>3</sup>Korea Food Research Institute, 245, Nongsaeangmyeong-ro, Iseo-myeon, Wanju\_Gun,  
 Jeollabuk-do 55365, Korea

**ABSTRACT**

Protoaetia brevitarsis (PB) extracts has been traditionally used as medicinal stuff to treat blood stasis, occlusion of menstruation, tetanus and liver cancer in Asian countries (Korea, Japan, China, Taiwan, India and Myanmar). Especially, Donguibogam, which is traditional korean medicinal book, described the PB extracts as traditional medicine to treat hepatic diseases and vascular disorders. The PB extracts has been considered as highly nutritional food. The major constituents of PB extracts are rich in protein, healthy fats, iron, calcium. Recent studies announced that PB extracts has hepatoprotective effect and anti-microbial effect. However, the effect of PB on ulcerative colitis has not been uncovered yet.

The aim of this study was to examine the anti-inflammatory effect of PB extracts in dextran sulfate sodium (DSS)- induced colitis mice model. Cytotoxicity of PB was determined by MTT assay and the anti-inflammatory effect of PB extract was investigated by measuring nitric oxide (NO) production. PB extracts did not show any cytotoxicity. Also, PB extracts suppressed NO production in LPS- stimulated mice peritoneal macrophages. To determine whether PB could be an effective treatment on ulcerative colitis, DSS was administered in BALB/c mice for 10 days. PB extract significantly improved the clinical signs of DSS-induced UC, including body weight loss, colon length shortening, and disease activity index increase, with histological markers of colon injury. These findings indicated the possibility of PB as a therapeutic agent on ulcerative colitis.

Key words : Protoaetia brevitarsis, Ulcerative Colitis, inflammation, macrophage

This research was financially supported by the Ministry of SMEs and Startups(MSS), Korea, under the “Regional Specialized Industry Development Program(R&D, P0002762)” supervised by the Korea Institute for Advancement of Technology (KIAT).