

Anti-inflammatory and Antioxidative Effects of *Scilla scilloides* (Lindl.) Druce Root Extract

¹Bio/Molecular Informatics Center, Konkuk University, Seoul 143-701, Korea

²Division of Animal Life Science, Konkuk University, Seoul 143-701, Korea

³Department of Advanced Technology Fusion, Konkuk University, Seoul 143-701, Korea

⁴Department of Physiology, College of Veterinary Medicine, Konkuk University, Seoul 143-701,
Korea

Eun-Ju Yeo^{1,2}, Kee-Tae Kim¹, Ye Sun Han³, Seung-Yeol Nah⁴, and Hyun-Dong Paik^{1,2*}

Objectives

The purpose of this study is to evaluate the root-extract of *S. scilloides* as an anti-inflammatory agent inhibiting hyaluronidase *in vitro*, and as an antioxidative or anti-aging agent.

Material and Methods

Sample preparation *S. scilloides* was taken from the southern area of An-dong (Korea).

Determination of anti-inflammatory activity Hyaluronidase activity was determined by measuring the amount of N-acetylglucosamine formed from sodium hyaluronidate with a spectrophotometer.

Determination of antioxidative activity The thiocyanate method was used to determine the antioxidant properties of *S. scilloides* root extracts

Statistical analysis Analysis of variance was performed for triplicate samples using the SAS program.

Results and Discussion

Anti-inflammatory activity The results of this study show that both 0.1 and 1.0% concentrations of extract have inhibitory effects on hyaluronidase (Table 1). In addition, no inhibitory effects against hyaluronidase were detected at concentrations below 0.1% of extract.

Antioxidative activity The results are shown in Table 2 and indicate that 1.0% and 10% concentrations of *S. scilloides* extract have antioxidative activity ($p < 0.05$).

It is presumed that the major components of *S. scilloides* root extract which produce anti-inflammatory, or antioxidative effects are fat-soluble and that these are flavonoids or their glucosides. The root extract will be very valuable as new therapeutic material because of its multi-functional activities. The isolation and quantitative determination of each flavonoid or major compound in *S. scilloides* root extract as an antioxidant agent will be pursued in future studies.

Corresponding author : 백현동

E-mail :hdpaik@konkuk.ac.kr

Tel : 02-2049-6011

Table 1. The anti-inflammatory effect of *S. scilloides* root extract

Samples	Concentration (%)	Inhibitory effect (%) ¹⁾
Control	0	0.22 ± 0.13 ²⁾
Extract of <i>S. scilloides</i>	0.1	14.85 ± 1.25
	1.0	48.23 ± 0.36

¹⁾Inhibitory effect (%) = $[(\Delta OD_c - \Delta OD_s) / \Delta OD_s] \times 100$

(ΔOD_c Optical density of control, ΔOD_s Optical density of sample).

²⁾The values are mean ± S.D

Table 2. The antioxidative effect of *S. silloides* root extract compared with BHA using the thiocyanate method.

Sample	Concentration (%)	AOI*
BHA	1.0	76.8 ± 3.5
Extract of <i>S. scilloides</i>	1.0	33.2 ± 5.8
	10	72.3 ± 4.2

*AOI ; Antioxidative Index: OD_s Optical density of samples, OD_b Optical density of blank, OD_c Optical density of control, $\Delta OD_s = OD_s - OD_b$, $\Delta OD_c = OD_c - OD_b$, Antioxidative(AOE) efficiency(%) = $(\Delta OD_c - \Delta OD_s) / \Delta OD_c \times 100$, AOI = AOE%/solid content w/v%.