

Antioxidant and Antiproliferative Activities of *Impatiens textori* MIQ.

¹Department of Applied Plant Sciences, Kangwon National University

²Majors in Plant Resource Sciences and Environment, Jeju National University

Jinfeng Yang¹, Ju-Sung Kim², Eun-Young Choi¹, Yeo-Jin Sa¹,

Hyun-Ju Jeong¹, Joo-Seok Kim¹, and Myong-Jo Kim^{1*}

Objectives

Impatiens textori MIQ. (ITM) is an annual plant that have been used in traditional chinese medicine to treatment of superficial infections and fingernail inflammation. In this study, the methanol extract and fractions from ITM was investigated for its antioxidant properties and antiproliferative against human gastric (AGS), human cervical (Hela), human hepatoma (Hep3B), human non-small lung (A549), and human colon adenocarcinoma (HT-29) cancer cell lines.

Materials and Methods

○ Materials

The shade dried whole plant was powdered and extracted with 100% methanol. The crude extract was subfractionated into *n*-hexane, ethyl-acetate(EtOAc), *n*-butanol(BuOH; water saturated) and aqueous fractions. The fractions were then stored under refrigeration for further analysis. For cell studies, the fractions were dissolved in dimethyl sulfoxide(DMSO) as a 10 mg/ml stock solution and diluted as desired directly in the medium. Cisplatin was dissolved in double distilled water.

○ Methods

The total phenolic and flavonoid content, DPPH radical scaring, reducing power and antiproliferative against AGS, Hela, Hep3B, A549 and HT-29 cancer cell lines of CM were investigated.

Results

In this study, results showed that ethyl-acetate fraction has a high total flavonoid and total phenolic value of 141.39 ± 1.54 mg GAE/g and 125.93 ± 7.60 mg QE/g, respectively. DPPH radical scavenging activity with an IC_{50} of 9.80 ± 0.08 μ g/ml and significant reducing power among all the extract and fraction, suggesting that ITM is an exceptional source of natural antioxidants. In addition, the antiproliferative activity of ethyl-acetate fraction was higher than that of methanol extract and others fractions. The findings thus suggest the potential use of this plant as antitumor agent.

Corresponding author: Myong-Jo Kim, E-mail: kimmjo@kangwon.ac.kr, Tel: 033-250-6413.

Table 1. The total phenolic, flavonoid contents and DPPH radical scavenging activity of extract and fractions from *Impatiens textori* MIQ.

Fraction	TPC ¹⁾ (mg GAE/g)	TFC ²⁾ (mg QE/g)	DPPH radical scavenging activity IC ₅₀ (µg/ml)
M	37.76±3.36	19.84±0.30	23.46±0.15
H	40.83±3.74	29.49±2.46	29.42±0.53
E	141.39±1.54	125.93±7.60	9.80±0.08
B	54.20±0.98	39.58±0.71	18.52±0.10
W	11.83±0.74	4.01±3.19	54.02±3.50
BHA			5.48±0.01
BHT			14.53±0.55

1) Total phenolic contents ; 2) Total flavonoid contents

M, methanol extract; H, hexane fraction; E, ethyl acetate fraction; B, butanol fraction; W, water fraction

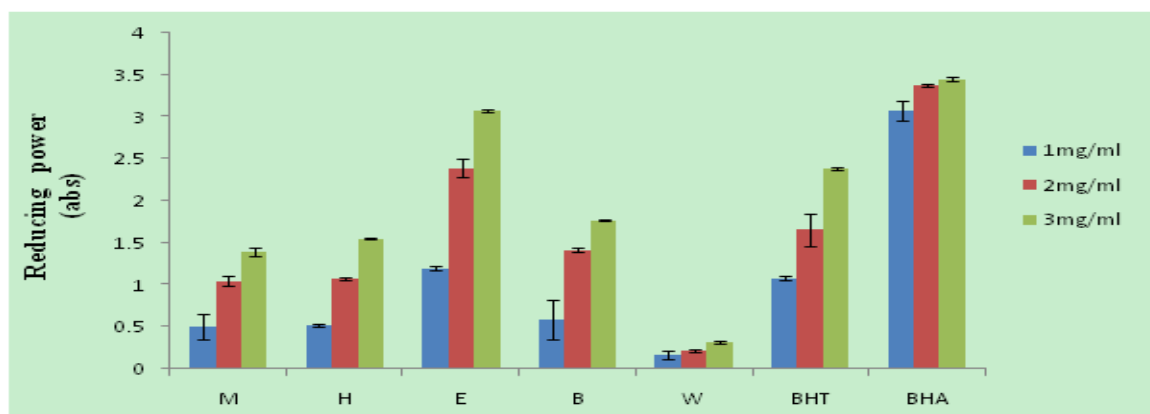


Fig. 1. Reducing power of extract and fractions from *Impatiens textori* MIQ.

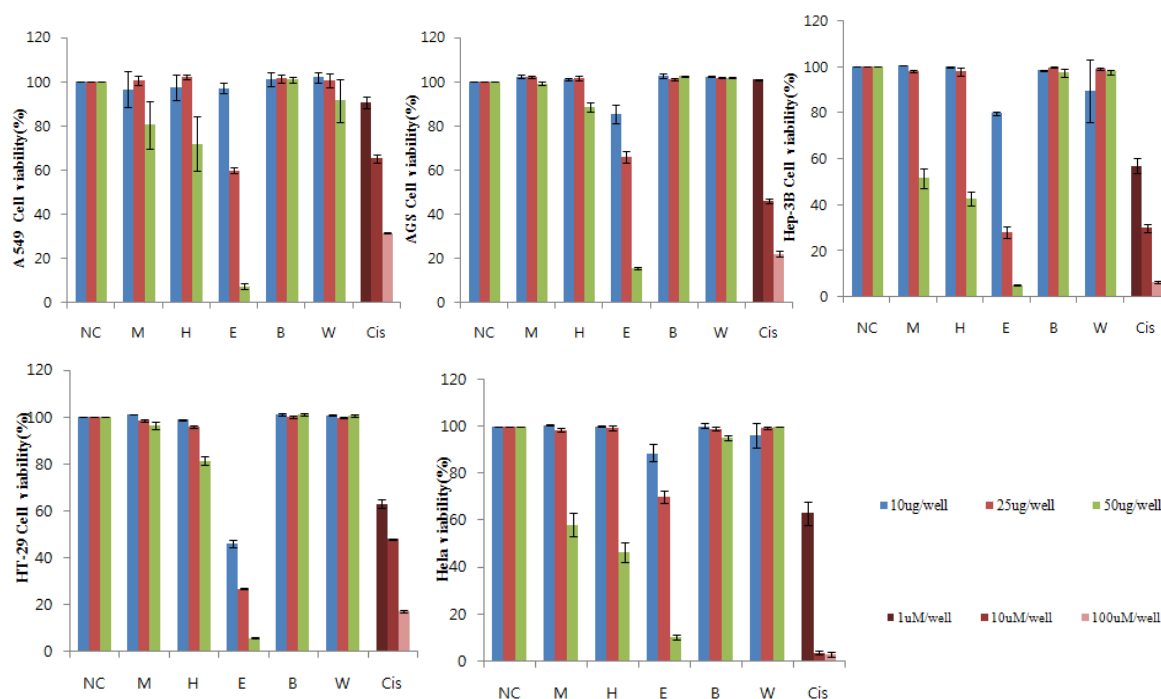


Fig. 2. Cancer cell viability from *Impatiens textori* Miq.

NC, negative control; cis, cisplatin (positive control). Cisplatin concentration of 1, 10 and 100 µM.