

Isolation and identification of naphthoquinone derivatives from the fruits of *Catalpa ovata* G. Don as antimicrobial substances

국주희, 박근형*

전남대학교 식품공학과

전화 (062) 530-2143, FAX (062) 530-2149

Abstract

The bioassay-guided isolation gave an antimicrobial compounds having a naphthoquinone skeleton from the methanol extract of *Catalpa ovata* fruits. The methanol extract of *C. ovata* fruits showed strong antimicrobial activity and was solvent fractionated. The ethyl acetate-soluble neutral fraction was successively purified by silica gel adsorption chromatography, Sephadex LH-20 column chromatography and ODS column chromatography. Further purification by HPLC on an ODS column (60% MeOH) and Fluofix column (40% MeOH) gave antimicrobial active compound **1** and **2**, respectively. The structures were characterized to 9-methoxy-2,2-dimethyl-3,4-dihydropyrano[2,3-*b*]naphthoquinone (**1**) and 2,2-dimethyl-3-hydroxy-4-oxopyrano[2,3-*b*]naphthoquinone (**2**) by its MS, ^1H -, ^{13}C -, and two dimensional NMR spectroscopic analyses.

Reference

1. Zaika, L. L. Spices and herbs. Their antimicrobial activity and its determination (1988). *J. Food Safety* 9, 97-118.
2. Moon, J. H., Ma, S. J., Lee, H. H., Watanabe, N., Sakata, K. and Park, K.H., Isolation and structural determination of a novel antimicrobial compound from the root of *Pulsatilla koreana* (2000). *Nat. Prod. Lett.* 14, 311-317.
3. Fujiwara, A., Mori, T., Iida, A., Ueda, S., Hano, Y., Nomura, T., Tokuda, H. and Nishino, H., Antitumor-promoting naphthoquinones from *Catalpa ovata* (1998). *J. Nat. Prod.* 61, 629-632.
4. Inouye, H., Okuda, T. and Hayashi, T., Quinones and related compounds in higher plants. II (1975). *Chem. Pharm. Bull.* 23, 384-391.
5. Kim, M. S., Studies on the chemical components and physiological activities of *Catalpa ovata* (1992). M.S. thesis, Pusan Univ., Pusan, Korea.