

P8-53

Anti-oxidant and Anti-hypercholesteromic Effects of *Wasabia japonica*

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This study was carried out to investigate the anti-oxidant and anti-hypercholesteromic effects of *Wasabia japonica* (WJ) in hypercholesteromic rats. The anti-oxidant activities of various extracts from WJ were investigated. The water and ethanol extracts of WJ leaf were found to cause significant free radical scavenging effects on DPPH and nitric oxide scavenging ability in LPS-stimulated RAW 264.7 macrophages cells. Inhibition of nitric oxide (NO) production was achieved by reducing inducible nitric oxide synthases (iNOS) mRNA and protein expression. Sprague-Dawley male rats were randomly assigned to one normal diet and three high cholesterol diet groups which contained 1% (w/w) cholesterol. After 4 weeks cholesterol diet, the groups of high cholesterol diet were classified to control (normal diet only), WJR5 (normal diet and 5% WJ root) and WJL5 (normal diet and 5% WJ leaf). Contents of serum HDL-cholesterol were significantly increased in WJ diet groups compared with normal diet group. Contents of serum LDL-cholesterol were significantly decreased in the groups of WJ diet. Liver xanthine oxidase activity in the rats of high cholesterol diet was decreased up to the levels of normal diet group according to WJ diet. The results of the study indicate that the diet of WJ can ameliorate the status of HDL-cholesterol and LDL-cholesterol and repress xanthine oxidase in liver in high cholesterol diet rats. In view of these results, WJ is expected to be an effective material for the anti-oxidant and anti-hypercholesteromic in high cholesterol diet rats.

P8-54

Antibacterial Activity of Extracts of *Ulmus davidiana* against Methicillin-resistant *Staphylococcus aureus*

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Since methicillin-resistant *Staphylococcus aureus* (MRSA) exhibits multidrug resistance, it has been emerging worldwide as one of the most important hospital and community pathogens. Therefore, new agents are needed to treat the MRSA. Some natural products are candidates of new antibiotic substances. *Ulmus davidiana* (*U. davidiana*) has long been used in Oriental folk medicines to treat infectious diseases. In this study, we examined the antimicrobial activity of *U. davidiana* to MRSA. The methanol extract of cortex of *U. davidiana* and the obtained fractions (chloroform, ethyl acetate, *n*-butanol and water) were tested for their antibacterial activities against MRSA. In this study two American Type Culture Collection (ATCC) standard strains methicillin-sensitive *Staphylococcus aureus* (MSSA) ATCC 25923, MRSA ATCC 33591, and 12 strains MRSA of isolated from Wonkwang University Hospital and Seoul National University Hospital were used. Our result indicated that the methanol extract of cortex of *U. davidiana* and the obtained fractions (chloroform, ethyl acetate, *n*-butanol and water) exhibited antibacterial effects against one MSSA and 13 MRSA. Fractionation enhanced the activity as compared to the crude extract. The chloroform extract (MIC in the range of 63–125 µg/ml) exhibited noticeable antibacterial activity. These results suggest that cortex of *U. davidiana* may have the antimicrobial activities to antibiotic-resistant *S. aureus*.

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