Purification of Antioxidant substance from the stem bark of *Rhus verniciflua*

Jung Bae KIM

Dept. of food and nutrient, Sangji-Youngseo College, Wonju, Kangwon, 220-713, Korea

The *Rhus verniciflua* contains alkly(en)-catechol type allergens with a saturated or unsaturated alkly chain of 15 or 17 carbon atoms. It has been recognized as an extremely active allergen causing skin reactions similar to poison ivy. The allergic contact dermatitis induced by the urushiol is known to be mediated be T lymphocytes whicht specifically recognize the hepten urushiol. Therefore, direct use of this plant as a medicinal purpose might imply a considerable hazard in Korea. In this study, using the established method for the detoxification from the stem bark of *Rhus verniciflua*, an strong antioxidant substance was isolated and characterized. DPPH (diphenypricryl hydrazyl) assay measures hydrogen atom-donating activity and hence provides a measure of free radical scavenging antioxidant activity. DPPH, a purple-colored stable free radical, is reduced to yellow-colored diphenylpicryl hydrazine by antioxidants to deducing agents. Antioxidative effects of the water extract from RV were measured by DPPH assay. Twenty microliters of the extract was added to 1ml of 100mM DPPH solution in ethanol. The mixture was shaken and left to stand for 10min at room temperature. The crude water extracts was purified by using HPLC method with a DEAE (anionic type), CN, ODS column. The purified compound remained stable at pH 3.0-6.0, but unstable above pH 6.5. It was stable heat at 100°C for 4 hours, but still had about 80% of residual activity after treatment at 100°C for 5 hours. The elemental composition of the HR-EI mass spectrum at m/z 170.02 was estimated the empirical formula as $C_7H_6O_5$, $C_{10}H_4O_2N_1$, $C_5H_4O_4N_3$, $C_8H_2O_1N_4$. In antimicrobial test, no inhibition was observed against Gram-positive and negative bacteria. This compound was stronger than that of commercial antioxidant by DPPH test, such as BHT, BHC at the same concentration (20㎍/ml).