

다음으로는 Ca 372.9 mg%이었다. 유기산 함량은 건물량 기준으로 formic acid가 19,478 mg/100 g으로 가장 그 함량이 높았으며, 그 다음으로는 succinic acid (18,167 mg/100 g), malonic acid (14,487 mg/100 g), malic acid (13,018 mg/100 g) 순이었다.

### [P-3]

#### Characterization and distribution of phenolics in carrot cell walls

Yoon-Han Kang

Dept. of Food Science, Wonju National College

The purpose of this study was to investigate the release of *p*-hydroxybenzoic acid and other compounds from cell wall materials(CWM) and their cellulose fraction from carrot with chemical and enzymatic hydrolysis. To investigate this effect on cell wall chemistry of carrot, alcohol insoluble residue(AIR) of CWM were prepared and were extracted sequentially with water, imidazole, CDTA(-1, -2), Na<sub>2</sub>CO<sub>3</sub>(-1, -2), KOH(0.5, 1.0 and 4 M), to leave a residue. These were analysed for their carbohydrate and phenolic acids composition. Arabinose and galactose were the main noncellulosic sugars. Phenolics esterified to cell walls in carrot were found to consist primarily of *p*-hydroxybenzoic acid with minor contribution from vanillin, ferulic acid and *p*-hydroxybenzaldehyde. *p*-Hydroxybenzoic acid was quite strongly bound to the cell wall. The contents of *p*-hydroxybenzoic acid in 0.5M KOH, Na<sub>2</sub>CO<sub>3</sub>-2, 1M KOH, and  $\alpha$ -cellulose were 2,097, 1,360, 1,140, and 717  $\mu$ g/g AIR from CWM, respectively. Alkali labile unknown aromatic compound(C<sub>7</sub>H<sub>10</sub>O<sub>2</sub>) was found in  $\alpha$ -cellulose hydrolyzate digested with driselase and cellulase. This compound was also found in hydrolyzate of 2 M trifluoroacetic acid at 120°C for 2 hours. Driselase treatment solubilized only 46.6  $\mu$ g/g of the *p*-hydroxybenzoic acid from carrot AIR. These results indicate that *p*-hydroxybenzoic acid was associated with neutral polysaccharides, long chain galactose and branched arabinan from graded alcohol precipitation.

### [P-4]

#### 지초뿌리 유래의 기능성 물질의 탐색

문영환\*, 조정용<sup>1</sup>, 위지향, 문제학, 박근형

전남대학교 식품공학과, <sup>1</sup>日本 徳島大學校 藥學部 生藥學研究室

지초(*Lithospermum erythrorhizon*)뿌리는 예로부터 한방약제로 이용되어져 왔으며, 지초 뿌리에 함유된 naphthoquinone계 색소물질인 shikonin은 항암, 항균, 항바이러스, 항염증 등의 효과가 있다고 보고되었다. 그러나 지초뿌리에 함유된 기능성 물질에 관한 연구는 미비한 실정이다. 이에 본 연구에서는 지초뿌리에서 기능성 물질의 탐색 및 기능성 해명연구를 위하여 지초뿌리를 ethanol로 추출한 후 이 추출물을 *n*-hexane, EtOAc, MeOH로 순차적으로 추출하여 MeOH 추출물을 얻었다. 이 MeOH 추출물을