

Many organic functional groups including hydroxyl, carbonyl, carboxyl, nitro and azomethine are contained in the structures of the antibiotic substances of which potencies are measured by microbial assays. Although differential pulse polarography(DPP) offers the advantages of speed and accuracy for the analyses of antibiotics which possess the electrochemically reducible functional groups, DPP has not been employed in the official assay methods in Korea. Cefotaxime sodium, ceftriaxone sodium and ceftazidime have been investigated to develop their DPP analytical procedures using phosphate and tartarate buffers of various pH values. DP polarograms of these cephalosporins showed one, two or three peaks which were shifted toward the negative potentials as the pH values of the buffers were increased. This indicates protons are involved in their electrochemical reduction. Cefotaxime sodium exhibited a stable and sensitive peak at -1.016 V in a phosphate buffer of pH 7.0. Ceftriaxone sodium and ceftazidime were stable and sensitive in a phosphate buffer of pH 6.0: Ep1:-0.852 V, Ep2:-1.208 V with ceftriaxone sodium and Ep:-0.628 V with ceftazidime. The peak currents(Ip) were linearly increased as the concentrations of each cephalosporin antibiotic were increased.

[PD4-15] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

Quality control of Polygonati Rhizoma

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Polygonati Rhizoma, the root of *Polygonatum sibiricum*, has been used as an antibiotic, antifungal and hypotensive in traditional medicine. Azetidine-2-carboxylic acid, homoserine, diamino butyric acid are reported from Polygonati Rhizoma. However quality control method of Polygonati Rhizoma is not reported so far. Therefore, we studied quality control method of Polygonati Rhizoma. Azetidine-2-carboxylic acid (1) was selected as the analytical marker since it is the major and specific compound of Polygonati Rhizoma. Powdered Polygonati Rhizoma was extracted and (1) was derivatized with trimethylsilylating reagent to increase volatility. Trimethylsilyl derivatized (1) was analyzed with capillary gas chromatography using methylsilicon fluid stationary phase. The content of (1) in 49 samples collected over the country was 0.67 ± 0.34 %.

[PD4-16] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

Metabolites of Aloesin

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Aloe is a perennial evergreen herbaceous plant or tropical woody plant and more than 360 species are known to the whole world. Its leaves have long been used in folk medicine for the treatment of burns and dermatitis. Reported activities of aloe include antibacterial, antigastric ulcer, antidiabetic, antitumor, tyrosinase inhibition, and anti-inflammatory activities. Several anthrones, anthraquinones, anthrones, chromones, pyrones, polysaccharides, and their C-glycosyl compounds have been isolated from various Aloe species. Aloesin, the most abundant C-glycosylated chromone in *A. barbadensis*, is reported to have whitening and kidney-protection activities. In this study, we isolated and identified metabolites of aloesin. Aloesin was administered to rats through oral administration or i.v. injection, and its metabolites in blood, urine and bile were studied. Two metabolites were isolated. Their structure were elucidated to be 8-C-glucosyl-7-hydroxy-2-(2-hydroxypropyl)-5-methylchromone (1) and 7-hydroxy-2-(2-hydroxypropyl)-5-

methylchromone (2), respectively, based on spectroscopic evidences and direct comparison with synthetic compounds. (1) was found from urine, bile and blood, while (2) was found from urine and bile.

[PD4-17] [10/19/2000 (Thr) 15:00 – 16:00 / [Hall B]]

Analysis of Four Herbal Medicines by Pattern Recognition Method

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Chromatographic pattern recognition method was applied to the analysis of four herbal medicines, namely, Caryophylli Flos, Curcumae Rhizoma, Amomi Semen, and Asiasari Radix. Reference herbal medicine, which is a standard in components and their contents, was prepared by mixing the same amount of samples collected over the country. Each sample was analyzed by pattern recognition method using reference herbal medicine as a standard. Mean values of content ratio of 40–50 samples of Caryophylli Flos, Curcumae Rhizoma, Amomi Semen, and Asiasari Radix were $100 \pm 13.3\%$, $97.0 \pm 16.3\%$, $101 \pm 10.6\%$, and $98.7 \pm 9.64\%$, respectively. Similarities between reference medicine and test sample were $89.5 \pm 6.14\%$, $84.2 \pm 5.24\%$, $88.3 \pm 5.17\%$ and $84.2 \pm 5.40\%$, respectively. Chromatographic pattern recognition was very successful for the quality control of herbal medicines.

[PD4-18] [10/19/2000 (Thr) 15:00 – 16:00 / [Hall B]]

Analysis of the compounds in Citrus junos

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The fruit of Citrus junos Sieb has long been used in folk medicine for a cough remedy, an expectorant and an aromatic bitter pectic. Limonoids, coumarines and flavonoids were reported from various Citrus plants. Reported biological activities from these compounds include antitumor, cancer chemopreventive, antihypertensive, cholesterol-lowering, and antithrombogenic activities. C. junos is cultivated mainly in Korea, China and Japan. It is consumed as fruit, junos honey and junos juice in Korea. We studied chemical constituents of the ripe fruit of C. junos cultivated in the southern seashore in Korea. Seven compounds were isolated and their structure were elucidated based on the physicochemical properties and spectroscopic evidences, namely, umbelliferone, hispidulin, 9-hydroxy-4-methoxypsoralen, aurapten, cirsimaritin, limonin, and deacetyl-nomilin. The contents of these seven compounds in the peel and the flesh of the fruit of C. junos were determined by HPLC. The contents in the peel were 0.006, 0.025, 0.011, 0.183, 0.022, 0.137 mg/g, and trace, respectively, while they were 0.001, 0.005, 0.004, 0.006, 0.004, 0.022 mg/g, and trace in the flesh.

[PD4-19] [10/19/2000 (Thr) 15:00 – 16:00 / [Hall B]]

Seven new dammarane glycosides from heat processed ginseng

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