[*J. Chromatogr. A.*, **911**, 217-223 (2001)] [Lab. of Hygienics]

Application of Ion-exchange Cartridge Clean-up in Food Analysis IV. Confirmatory Assay of Benzylpenicillin, Phenoxymethylpenicillin, Oxacillin, Cloxacillin, Nafcillin and Dicloxacillin in Bovine Tissues by Liquid Chromatography-Electrospray Ionization Tandem Mass Spectmetry.

Yuko ITO, Yoshitomo IKAI, Hisao OKA, Hiroshi MATSUMOTO, Yutaka MIYAZAKI, Kazue TAKEBA and Hisamitsu NAGASE*

A multiresidue analytical method was developed for the confirmation of benzylpenicillin, phenoxymethylpenicillin, oxacillin, cloxacillin, nafcillin and dicloxacillin in bovine tissues using electrospray ionization liquid chromatography- tandem mass spectrometry (LC-ESI-MS-MS) with a product ion scan mode. Combination of an ion-exchange cartridge clean-up and the LC-ESI-MS-MS method can reliably identify all of these penicillins fortified at a concentration of 0.05 mg/kg in bovine tissues, including liver, kidney and muscle. The limits of confirmation satisfy the maximum residue limits for each of the penicillins established by the World Health Organization, US Food and Drug Administration , European Union and Japan.

[*J. Anal. Toxicol.*, **25**, 304-309 (2001)] [Lab. of Hygienics]

Analysis of Pyrolysis Products of Dimethylamphetamine.

Motoyasu SATO, Minemasa HIDA and Hisamitsu NAGASE*

This study examines the pyrolysis products of dimethylamphetamine (DMAMP) and its pyrolysis mechanism. A sealed glass tube, in which DMAMP-HCl was placed, was wrapped with pyrolysis-foil and heated at the Curie point of the pyrolysis-foil. The pyrolysis products of DMAMP were detected by gas chromatography-mass spectrometry (GC-MS), headspace (HS)-GC-MS and liquid chromatography-electrospray ionization –mass spectrometry (LC-ESI-MS). DMAMP-d_6-HCl, in which all the hydrogen atoms of the two methyl groups of DMAMP were substituted with deuterium atoms, was pyrolyzed to investigate the elimination and transformation reactions of the methyl group. Methamphetamine (MAMP) and amphetamine (AMP) were produced via demethylation reaction by heating DMAMP, and the maximum amounts of MAMP and AMP were about 31.8% and 13.7% of the starting DMAMP at 358C and 386C, respectively.

[*Protein and Peptide Lett.*, **8**, 317-322 (2001)] [Lab. of Hygienics]

Crystalilization and Preliminary X-ray Crystallographic Studies of Human Autocrine Motility Factor.

Hiroshi UEMURA, Nobutada TANAKA, Tatsuyoshi FUNASAKA, Arayo HAGA,* Hisamitsu NAGASE, Avraham RAZ and Kazuo T. NAKAMURA

Human autocrine motility factor (hAMF), a tumor-secreted cytokine which stimulates cell migration in vitro and metastasis in vivo, has been crystallized by the hanging-drop vapour diffusion method. The crystals belong to an orthorhombic space group $P2_12_12_1$ with the cell dimensions of a=80.79Å, b=107.1Å, and c=270.9Å. There are two dimers per asymmetric unit. The crystals diffract to at least 2.0Å resolution and are suitable for X-ray structure analysis at high resolution.

[*Oral Oncol.*, **38**, 49-55 (2001)] [Lab. of Hygienics]

Regulation of Cell Motility via High and Low Affinity Autocrine Motility Factor (AMF) Receptor in Human Oral Squamous Carcinoma Cells.

Yasufumi NIINAKA , Arayo HAGA, *Akihide NEGISHI, Hidemi YOSHIMASU, Avraham RAZ and Teruo AMAGASA

A tumour-secreted cytokine autocrine motility factor (AMF) induces in vivo invasion and metastasis, and in vitro tumour cell motility by a signal transduction through interaction with its cell surface receptor gp78. The characterization of a high-metastatic human oral squamous cell carcinoma (SCC) cell line LMF4 and low-metastatic HSC-3 in comparison with non-metastatic HSC-2 and HSC-4. Morphological and motility analyses revealed LMF4 cells was investigated to have the highest motile activity among those cells. However, LMF4 cells shared the similar features with HSC-3: high level secretion of AMF, enhancement of gp78 expression, co-expression of vimentin and cytokeratin, although LMF4 cells showed twice as high motile reactivity as HSC-3. The only difference was that LMF4 had twice as high amount of low-affinity receptor(s) as HSC-3, shown by Scatchard analysis.