Studies on the constituents of the aerial part of Gastrodia elata Blume

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Gastrodia elata Blume belongs to Orchidaceae, its steamed and dried rhizomes are very important herbal medicines used for the medical treatment of headaches, migraine, dizziness, epilepsy, rheumatism, neuralgia, paralysis and other neuralgic and nervous disorders. Although phytochemical studies of the rhizome have revealed the presence of several phenolic compounds, in which a phenolic glycoside, gastrodin (C13H18O7), is a major constituent, so far, there is no report on the studies of its aerial part. We isolated and obtained eight compounds from its methanol extracts for the first time, and determined their structures by their spectrum evidences, including NMR and Mass, in which gastrodin is also a major constituent, together with other phenolic compound, steroid and fatty acids.

[PD3-5] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

New tsaokoin isomer with antifungal activity from the plant Amomum tsao-ko

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The fruits of cardamon (family Zingiberaceae) are used in traditional medicine for the treatment of several ailments, such as stomach disorders, liver abscess, and infection of the throat, and as a common spice as well. Amomum tsao-ko Crevost et Lemarie, a Zingiberaceous plant called "초과" in korea, is an oriental folk medicinal herb for the treatment of stomach illness. The present paper reports the isolation of the constituents of the fruits of this plant and their antifungal activity.
We examined the antifungal activity of methanol extracts of A. tsao-ko, against Trichophyton mentagrophytes, Candida albicans, Pityrosporum ovale. An ethyl acetate layer showed extremely high activity and was fractionated in detail employing the paper-disk antifungal assay method to guide the isolation and purification. The active fraction was subjected to repeated column chromatography using silica gel, Si MPLC, and C-18 HPLC to afford two compounds, D1 and D3. Characterization of the isolated compounds was based on Mass and various NMR (1H-NMR and 13C-NMR, 1D-NOESY, gCOSY, TOCSY, gHSQC, and gHMBC) spectroscopic techniques. D1 was obtained as a pale brown oil with a yield of 0.01054%. Thus, the molecular formula of D1 was determined to be C10H14O2 by HRFABMS ([M+H]+ z/e 167.1072, calcd. 167.0994). Based on extensive NMR experiments the compound D1 was found to be identical to tsaokoin. D3 was obtained as an oil (yield: 0.00037%). D3 was determined to be an isomer of D1, which was not reported yet.

[PD3-6] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

Isolation of inhibitors of NF-κB activation by UV stimuli in transfectant HaCaT cells from Acanthopanacis sessiliflorum

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Nuclear-kappa B(NF-κB) plays a role in the regulation of genes responsible for inflammatory and immune responses as well as growth control of cells. A cell-based assay system for guiding NF-KB activity was developed to determine the influence of activated NF-KB in human keratinocytes. It suggested that this system could be used to determine the quantitative measurement of NF-κB activity in the human skin and allow the monitoring of anti-inflammatory agent for dermatological means from various environmental stimuli.
In our study on the search for inhibitors of NF-κB activation induced by ultraviolet radiation in human skin from natural sources, methanol extract of Acanthopanacis sessiliflorum (Araliaceae) showed potent NF-κB activity. An active compounds was isolated from the extract by repeated column chromatography. AS-1,among

them,exhibited strong NF-κB activity in transfectant human HaCat cells as well as raw 264.7 cells.

[PD3-7] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

Triterpene Components from the Leaves of Acanthopanax sessiliflorus .

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Acanthopanax species (Arelaceae) are widely distributed in Asia, which used as tonic and sedative as well as a drug with ginseng-like activities from olden time. There are many reports on the studies of these plants, but there seems no reported about components from the leaves of Acanthopanax sessiliflorus, which is indigenous plant to Korea. We have now characterized three triterpenoid compounds from MeOH extract of the leaves of this plant. Based on the physicochemical and spectroscopic data, their structures were identified as chiisanogenin, chiisanoside and 22-alpha-hydroxychiisanoside.

[PD3-8] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

Regulation of the absorption of dietary sugar by α-glucosidase inhibitors from herbal medicines

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The inhibitory activity of several crude drugs on α-glucosidase, which are the key enzyme for carbohydrate digestion and the prevention of diabetic complications, was investigated. This experiment was designed to examine the hypoglycaemic effect of four water extracts crude drugs. We found two drugs, Mori radicis Cortex and Cudraniae radicis Cortex in several crude drugs remarkably inhibited α-glucosidase. Two crude drugs were examined in streptozotocin induced high blood glucose mice. Oral administration of Mori radicis Cortex and Cudraniae radicis Cortex lowered the blood glucose level in the high blood glucose mice. High blood glucose was induced in mice by Cudraniae radicis Cortex intraperitoneal injections of steptozotocin (STZ, 150 mg/kg). Mori radicis Cortex and Cudraniae radicis Cortex strongly showed inhibitory activity by 36.4 and 21.9% in mice loaded with starch. In the case of the maltose load test, Mori radicis Cortex and Cudraniae radicis Cortex showed inhibitory activity by 19.5 and 6.1%. We used acarbose for positive standard. We compared with acarbose and starch groups but also compared with acarbose and maltose groups. When compared with acarbose and starch groups, Mori radicis Cortex was 1.2 times higher than acarbose but Cudraniae radicis Cortex was lower than acarbose. When compared with acarbose and maltose groups, Mori radicis Cortex was about 7 times higher than acarbose and Cudraniae radicis Cortex was about 2 times higher than acarbose.

[PD3-9] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

Effect of Ethyl Acetate Extract from Caesalpinia sappan L. on Melanogenesis in Melan-a cells

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Melanin is a main pigment found in skin, hair and eyes, and tyrosinase plays an important role in the process of melanin polymer biosynthesis.
Caesalpinia sappan L.(C. sappan) has been commonly used in Oriental folk medicines to promote blood circulation and as analgesic as well as remedy for thrombosis. This present study was designed to investigate the effect of ethyl acetate extract from C. sappan on melanogenesis in Melan-a cells. The cells showed a dose-dependent inhibition in their proliferation without apoptosis after treatment with ethyl acetate extracts. Therefore, the growth retardation by the extract may be due to the cell arrest or cell differentiation. The melanin content and