

tyrosine catalyzed by mushroom tyrosinase with  $IC_{50}$  of 16.8  $\mu$ M and 21.5  $\mu$ M, respectively. It compared well with kojic acid, a well-known tyrosinase inhibitor, with an  $IC_{50}$  of 22.4  $\mu$ M. The inhibitory kinetics, analyzed by a Lineweaver-Burk plot, found rosmarinic acid and its methyl ester to be competitive inhibitors with  $K_i$  of  $2.35 \times 10^{-5}$  M and  $1.52 \times 10^{-5}$  M, respectively. In addition, compounds 1 and 2 showed the scavenging activities on DPPH radical, with  $IC_{50}$  of 4.27  $\mu$ M and 3.05  $\mu$ M, respectively. These scavenging effects were more potent than that of L-ascorbic acid ( $IC_{50} = 11.75 \mu$ M).

[PD2-50] [ 10/17/2002 (Thr) 09:30 – 12:30 / Hall C ]

Study on antifungal activity of herb oils against *Trichophyton* spp.

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The antifungal activities of the essential oils from *Citrus bergamia*, *Ciderus atlantica*, *Cymbopogon ditratus*, *Eucalyptus globulus*, *Juniperus communis*, *Lavandula angustifolia*, *Melaleuca aterifolia*, *Pelargonium graveolens*, *Pogostemon patchouli*, *Rosmarinus officinalis*, *Styrax tonkinensis*, and *Thymus vulgaris*, which are recommended for the treatment of microbial infections in aromatherapy and complementary medicines, were tested against *Trichophyton* spp. The activities were measured by broth dilution method and disk diffusion assay. As the results, most of the test oils inhibited growth of *T. tonsurans*, *T. mentagrophytes*, *T. ferrugineum*, and *T. rubrum*. Especially, the essential oils from *C. atlantica*, *C. ditratus*, *E. globulus*, and *P. graveolens* showed the strongest activity among the tested herb oils showing MICs between <0.09 and 0.39 mg/ml.

[PD2-51] [ 10/17/2002 (Thr) 09:30 – 12:30 / Hall C ]

In vitro Antiinflammatory Activity of the Essential oil Extracted from *Chrysanthemum sibiricum* in Murine Macrophage RAW 264.7 Cells

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This research was undertaken to find the in vitro anti-inflammatory action of the essential oil (CS-oil) extracted from *Chrysanthemum sibiricum* (Compositae) herbs. We investigated the effects of the CS-oil not only on the formation NO and PGE<sub>2</sub> and TNF- $\alpha$  but also on inducible nitric oxide synthase and cyclooxygenase-2 (COX-2) in lipopolysaccharide (LPS)-induced murine macrophage 264.7. The data obtained were consistent with the modulation of iNOS enzyme expression. A similar fashion was also observed when LPS-induced PGE<sub>2</sub> release and COX-2 expression were tested. The significant inhibitory effects were shown in concentration-dependent manners. In addition, CS-oil also mildly but significantly reduced the formation of TNF- $\alpha$ . These actions may contribute to the availability of CS-oil as an antiinflammatory essential oil. GC-MS data on the oil led to the finding of 2-methoxythioanisol, (+)-camphor, geraniol, citral, thymol, eugenol,  $\beta$ -caryophyllene oxide,  $\beta$ -caryophyllene,  $\beta$ -eudesmol, juniper camphor together with an unknown substance contained more than 3% of the total oil.

[PD2-52] [ 10/17/2002 (Thr) 09:30 – 12:30 / Hall C ]

Antigastric and anti-ulcerative constituent from Panax ginseng head and its pharmacological activity

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