

## A243 Adverse effects of herbal medicine and dietary supplements in Iceland

Ó. Þórhallsdóttir<sup>a</sup>, M. Jóhannsson<sup>b</sup> and K. Ingólfssdóttir<sup>a</sup>

<sup>a</sup> Faculty of Pharmacy, University of Iceland, Hagi, Hofsvallagata, 107 Reykjavík, Iceland. <sup>b</sup> Faculty of Medicine, Dept. of Pharmacology, University of Iceland, Armuli 30, 108 Reykjavík, Iceland.

In an investigation aimed at estimating the frequency of adverse effects and drug-interactions attributable to the use of herbal medicine and dietary supplements in Iceland, a survey was undertaken in which physicians registered in Iceland (n = 1083) were questioned as to whether they had become aware of such effects. A number of questions were further posed in order to assess the perception, attitudes and knowledge of Icelandic physicians towards these products.

Of the 410 physicians that responded, 134 had become aware of adverse effects and 25 had become aware of herbal/drug interactions. Details on 253 adverse effects and 13 interactions were presented. Hospitalization was estimated to have been the consequence of 38 cases, 14 of which had been considered life-threatening.

In addition to the survey, computer files of the University Hospital based on the International Classification of Diseases (ICD-9 and ICD-10) were searched (1983-2000) for cases where consumption of herbal medicine had led to hospitalisation. A study of admissions to the Emergency Department of the hospital daily for one month revealed no cases of herbal medicinal involvement. Enquiries made to the Icelandic Poison Center 1997-2000 regarding herbal medicine were estimated to be 26. Formal reports submitted to the Icelandic Medicines Control Agency and the Surgeon General were examined and found to be nonexistent.

Adverse effects and interactions between herbal medicines/dietary supplements and prescribed drugs appear to be under-reported in Iceland. It is considered of utmost importance to increase awareness and education in this field amongst physicians and other health-care professionals.

## A244 Antifungal activity of oregano oils (*Lippia graveolens* and *Origanum virens*) on *Candida* species

L. Salgueiro<sup>a</sup>, E. Pinto<sup>b</sup>, C. Pina-Vaz<sup>c,e</sup>, C. Cavaleiro<sup>a</sup>, A. Rodrigues<sup>c,e</sup>, A. Palmeira<sup>b</sup>, S. Oliveira<sup>c</sup>, C. Tavares<sup>c</sup>, M.J. Gonçalves<sup>a</sup> and J. Oliveira<sup>d</sup>

<sup>a</sup> Lab. Pharmacognosy, Faculty of Pharmacy / CEF, 3000 Coimbra, Portugal. <sup>b</sup> Dept. Microbiology, School of Pharmacy/CEQOFF, 4050 Porto, Portugal. <sup>c</sup> Dept. Microbiology School of Medicine, 4200 Porto, Portugal. <sup>d</sup> Dept. Obstetrics/Gynaecology, School of Medicine, 4200 Porto, Portugal. <sup>e</sup> IPATIMUP, University of Porto, 4200 Porto, Portugal.

Vulvovaginal candidosis (VVC) and dermatomycoses are common infections. The increasing resistance to antifungal compounds and the reduced number of available drugs urged the search for therapeutic alternatives. Previous research of our team demonstrated the antifungal activity and the mechanism of action of some essential oils (EO) (1,2). The aim of this study is to evaluate the antifungal activity of the essential oils of *Lippia graveolens* and *Origanum virens* (oregano oils) used in folk medicine in order to support their use as antifungal agents. The composition of the oils was investigated by gas-chromatography and gas-chromatography/mass spectrometry (3). The Minimal Inhibitory Concentration (MIC), determined according to the NCCLS protocol M 27-A, the Minimal Lethal Concentration (MLC) and the inhibition of germ tube formation were used to evaluate the antifungal activity against *Candida* strains (7 clinical isolates and 3 ATCC strains). The mechanism of action was determined by flow cytometry, using the fluorescent probe propidium iodide (PI) (1). The antifungal activity of their major components was also evaluated. Both oils showed similar antifungal activity. MIC and MLC values are similar (0,16-0,32 µl/ml for *O. virens* and 0,16-0,63 µl/ml for *L. graveolens*). This is probably due to their chemical composition, mainly composed by carvacrol, p-cymene and thymol (over 70%). Concentrations lower than MIC values strongly prevent germ tube formation. PI, at MIC value, could penetrate rapidly (<15 minutes) most of the yeast cells (>90%), thus meaning that the fungicidal effect is primarily due to an extensive lesion of the membrane. This study showed the antifungal activity of these EO on *Candida* spp., supporting future therapeutical trials on mucocutaneous candidosis.

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