

In order to examine if alkylphenols and other chemicals such as curcumin derivatives have estrogenic activities we have studied uterotrophic assay, Escreening and ERE-Luc reporter assay with chemicals. Based on OECD guideline, immature rats were administered with diethylstilbestrol as a positive control, tamoxifen as a control of antiestrogen, and various chemicals daily for three days. Rats were sacrificed and uteri were taken out and wet and dry weights were weighted. Estrogen showed uterine weight increase ten-fold over control and tamoxifen alone treatment showed minimal increase. And tamoxifen and estrogen concomitant treatment showed inhibition on estrogen stimulated uterine weight increase. Nonylphenol showed two to three-fold increase in uterine weight and phthalate showed one and half-fold increase in uterine weight. pERE-Luc was stably transfected into MCF-7 cells and used for estrogenicity assay. 10pM Estradiol showed maximal stimulation on luciferase activity and tamoxifen showed no stimulation with alone treatment and inhibit estrogen stimulated luciferase activity when it was added into cells concomitantly. Among the tested curcumin derivatives, 10uM LV1154 showed minimal stimulation and SB118 showed moderate stimulation and SB100 showed antiestrogenic activity. [This study was supported from the grants of the ministry of environment]

[PA3-18] [ 04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3] ]

### **Evaluation of estrogenic activities of several pyrethroid insecticides in human breast cancer cell line**

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Synthetic pyrethroids are analogs of a natural chemical moiety, pyrethrin, derived from the pyrethrum plant *Chrysanthemum*. The natural pyrethrin structure has been modified to be highly lipophilic and photostable, creating an effective pesticide and resulting in an increased presence in the environment. Worldwide, they are commonly used insecticides against ticks, mites, mosquitoes, and as treatment for human head lice and scabies. Therefore, human exposure to their compounds is extensive. Several studies on the effects of pyrethroids on thyroid hormone regulation, estrogen and androgen function have been reported and yet little has been done to assess their potential hormonal activities.

We examined estrogenic/antiestrogenic potential of three pyrethroid insecticides, that is permethrin, allethrin and fenvalerate in human breast cancer cell (MCF7-BUS, MCF-7, T47D) and action mechanism mediated by the estrogen receptor.

[PA3-19] [ 04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3] ]

### **Antiestrogenicity of school waste incinerator residues**

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Incinerator residues samples collected from combustion of school incinerator contains several PACs including polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). These toxic organic chemicals may disrupt reproductive system by acting as estrogens or antiestrogens. In the case of PACs, they are not only ubiquitous and persistent in the environment, being primarily released from incomplete combustion process, solid wastes, and waste water but also can cause cancer.

Incinerator residues is extracted with toluene in a Soxhlet system using glass fiber thimbles. Clean-up method of incinerator residues is used in the fractionation. In this method, basic alumina binds neutral, planar aromatic compounds, which can be eluted from the column with solvent mixtures. Fractions (fraction 1: Aliphatic hydrocarbons, nonplanar aromatic compounds - most