C-01

USING *DROSOPHILA* TO SCREEN POTENTIAL CHINESE HERBAL MEDICINES FOR THE TREATMENT OF NEPHROLITHIASIS

利用果蠅篩選具治療結石潛力之中草藥

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Abstract:

Pharmacological therapy for urolithiasis using Chinese herbal medicines (CHMs) has been increasingly adopted for the prevention of its recurrence. A *Drosophila melanogaster* model developed for translational research of urolithiasis was applied to evaluate agents with potential antilithic effects and calcium oxalate (CaOx) formation. Potential antilithic herbs were prepared in a mixture of food in a diluted concentration of 5,000 from the original extract with 0.5% ethylene glycol as the lithogenic agent. The control group was fed with food only. After 3 weeks, flies ($n \cong 150$ for each group) were killed using CO_2 narcotization, and the Malpighian tubules were dissected, removed, and processed for polarized light microscopy examination of the crystals. The crystal formation rate in the positive control group was 100.0%. In the first study, 16 tested herbal drugs reached the crystal formation rate of 0.0%. *Semen cuscutae* enhanced CaOx crystal formation in the Malpighian tubules. Two herbal drugs Myrrha and *Natrii sulfas* causing the death of all flies. Our rapid screening methods provided evidence that some CHMs have potential antilithic effects.

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References:

1. Wu SY, *et al*. An emerging translational model to screen potential medicinal plants for nephrolithiasis, an independent risk factor for chronic kidney disease. *Evidence-Based Complementary and Alternative Medicine*, 2014. In press.