

## 紫茎泽兰9-羰基-10,11-去氢泽兰酮分布积累动态

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### Identification of 9-oxo-10,11-dehydroagerophorone in *Eupatorium adenophorum* by High Performance Liquid Chromatography

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摘要

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**摘要** 9-羰基-10,11-去氢泽兰酮为紫茎泽兰(*Eupatorium adenophorum*)的主要致肝脏毒性成分及杀虫的生物活性成分。从紫茎泽兰叶片中分离提纯得到9-羰基-10,11-去氢泽兰酮(Euptox A)标准品,建立了高效液相色谱法测定紫茎泽兰中Euptox A含量的分析方法。采用C<sub>18</sub>反相色谱柱,柱温30°C,以甲醇-水(60:40, v/v)为流动相、流速为0.8 mL·min<sup>-1</sup>、检测波长为255 nm进行测定。Euptox A在紫茎泽兰中的添加回收率为97.3% - 103.7%,检测限为0.4 μg·g<sup>-1</sup>。利用建立的方法测定Euptox A在紫茎泽兰体内分布与积累的动态变化规律。结果表明, Euptox A主要分布在紫茎泽兰的叶片中,且在营养生长期积累量高,生殖生长期积累量低。该方法快速、简捷,可用于紫茎泽兰原料及其产品中Euptox A成分的测定。

**关键词:** 9-羰基-10 11-去氢泽兰酮 紫茎泽兰 肝毒素 高效液相色谱

**Abstract:** We isolated and purified the component of 9-oxo-10,11-dehydroagerophorone (Euptox A), a hepatotoxin and an insecticide constituent, from *Eupatorium adenophorum* leaves by silica gel column chromatography and reverse-phase high performance liquid chromatography (HPLC). We developed an HPLC method for determining Euptox A from *E. adenophorum*, which was confirmed by HPLC-DAD-MS. The chromatographic separation was achieved on a Cosmosil Rp C<sub>18</sub> column with methanol:water (60:40, v/v) as the mobile phase, flow rate 0.8 mL·min<sup>-1</sup> and wavelength 255 nm. Data were corroborated by HPLC-MS with electro-spray ionization of positive ion mode. The limit of detection for Euptox A was 0.4 μg·g<sup>-1</sup>. The recoveries were 97.3% - 103.7% and relative standard deviations 2.4% - 3.5%. Euptox A was mainly distributed in leaves (1.34 - 8.41 mg·g<sup>-1</sup>) and only a small amount was detected in flowers, stems, or roots (< 0.06 mg·g<sup>-1</sup>). Euptox A mainly accumulated in plant leaves in the vegetative period (from May to October), with less accumulation in the reproductive period (from November to the next April). The established HPLC method is simple, quick and could be used for component determination in *E. adenophorum* products for quality control and safety evaluation.

**Keywords:** 9-oxo-10 11-dehydroagerophorone *Eupatorium adenophorum* hepatotoxin high performance liquid chromatography

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