

新化合物苦皮藤素 V 的分离 与结构鉴定简报

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摘 要 以叶碟定量载毒饲虫法追踪活性, 经柱层析及重结晶, 从杀虫植物苦皮藤 (*Celastrus angulatus*) 根皮的石油醚提取物中分离出一个化合物 G。这一化合物对昆虫有独特的作用机制: 破坏昆虫中肠肠壁细胞, 引起昆虫上吐下泻, 大量失水而亡。主要利用高分辨质谱和核磁共振波谱鉴定了这个化合物的分子结构为 2 β , 8 α -乙酰氧基-9 β -苯甲酰氧基-1 β , 12-二异丁酰氧基-4 α , 6 α -二羟基- β -二氢沉香呋喃。经文献检索, 化合物 G 为从未报道过的新化合物, 命名为苦皮藤素 V。

关键词 植物性杀虫剂, 分离, 分子结构/苦皮藤

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New Sesquiterpenoid Celangulin V: Isolation and Determination

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Abstract A new dihydroagarofuran sesquiterpenoid, Celangulin V, was isolated from the root bark of Chinese bittersweet, *Celastrus angulatus*, Max. Its structure was determined mainly by NMR and mass spectrometry. The results of bioassay showed that Celangulin V might be an insect midgut damaging agent.

Key words botanical insecticides, separation, molecular structure/*Celastrus angulatus*

In this paper, we report the isolation and determination of a new compound, which could damage the larval midgut of the armyworm (*Mythimna separata*).

The new compound was isolated from the petroleum ether extract of the root bark of Chinese bittersweet, *Celastrus angulatus*, which is a traditional botanical insecticide, following the procedure of Fig 1.

To guide the isolation, the trail of the bioactivity was followed by means of bioassay

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in which the 5th instar larvae of armyworm were fed with the corn leaf discs administered quantitatively by the samples.

The structure of the compound was determined mainly by NMR and mass spectrometry. The results showed that the compound was 2 β , 8 α -diacetoxy-9 β -benzoyloxy-1 β , 12-diisobutanoyloxy-4 α , 6 α -dihydroxy- β -dihydroagarofuran, with the same dihydroagarofuran skeleton as Celangulins I, II, III and IV, named as Celangulin V (Fig. 2).

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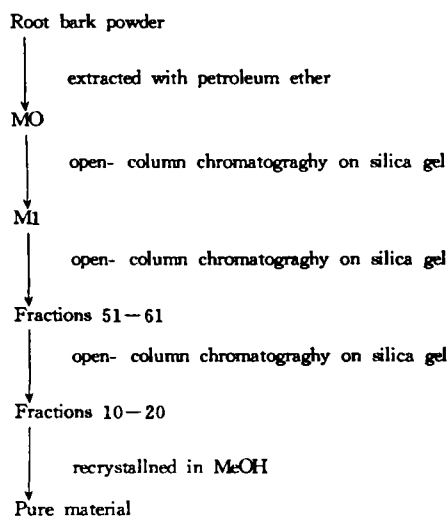


Fig. 1 Isolation procedure for Celangulin V

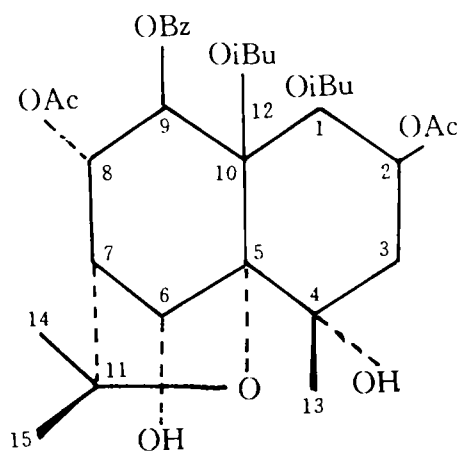


Fig. 2 Structure of Celangulin V