

牛心朴子草植物农药的化学成分与生物活性研究

姚宇澄,安天英,高俊,杨昭,于学舜,金钟,李广仁,黄润秋,朱常香,温孚江

内蒙古工业大学化工学院.;南开大学元素有机化学研究所.天津 (300071);元素有机化学国家重点实验室;
山东农业大学生命科学院

收稿日期 修回日期 网络版发布日期 接受日期

摘要 在分离鉴定化学组分基础上结合普筛农药活性,发现牛心朴子草提取物中生物碱部位显示抗植物病毒极高活性。通过生物活性跟踪与色谱分离、结构鉴定,确定它是菲并吡啶里西啶生物碱,包括7-脱甲氧基娃儿藤碱(Antofine)(1)和N-氧代-7-脱甲氧基娃儿藤碱(N-Oxideantofine)(2)。其中2是首次从该草分离得到。Antofine(1)

是该草抑制植物病毒主要成份;半中枯斑法测定它在 10^{-6} g/mL浓度的枯斑抑制率达60%,

比对照的常用植物病毒抑制剂活性高1~2

个数量级。用多种生测方法验证该草生物碱试样抗植物病毒如烟草花叶病毒(TMV)、马铃薯Y病毒(PVY)、芜菁花叶病毒(TuMV)等的生物活性。

关键词 [牛心朴子草](#) [农药](#) [化学成分](#) [生物活性](#) [植物病毒病](#) [菲并吡啶里西啶生物碱](#) [吡啶生物碱](#) [生物碱](#) [娃儿藤](#) [脱甲氧基娃儿藤碱](#) [脱甲氧基娃儿藤碱](#) [烟草花叶病毒](#) [马铃薯Y病毒](#) [芜菁花叶病毒](#)

分类号 [R93](#) [O629](#)

Research of chemistry and bioactivity of active compounds antiphytovirus in cynanchum komarovii

Yao Yucheng, An Tianying, Gao Jun, Yang Zhao, Yu Xueshun, Jin Zhong, Li Anren, Huang Runqiu, Zhu Changxiang, Wen Fujiang

Inner-Mong. Univ of Ind.; Nankai Univ, Elementoorgan Chem Lab. Tianjin(300071)

Abstract *Cynanchum komarovii* Al. Iljinski. (Asclepiadaceae) is a wild shrub, widely distributed in the northwest part of the People's Republic of China. The alcoholic extract from the aerial parts of *C. komarovii* was found to show potent antiviral activity against tobacco mosaic virus (TMV), potato virus Y (PVY) and turnip mosaic virus (TuMV). Using a bioassay- directed fractionation approach, the phenanthroindolizidine alkaloids (G), including two known compounds, 7-demethoxytylophorine (antofine) (1) and N-oxide-7- demethoxytylophorine (N-oxide antofine) (2), were isolated from the extract. The structures of 1 and 2 were established by comparison with authentic spectra. Compound 1 was confirmed to be the major active component against TMV among the alkaloids G. Bioassay performed by the conventional half-leaf method revealed that the alkaloid G showed highly inhibitory activity against TMV, PVY and TuMV. The major active alkaloid 1, exhibited 60% inhibition against TMV at a concentration of 1.0 μ g/mL, while a commercial antiviral 2, 4-dioxo-hexahydro-1, 3, 5-triazine (DHT) only showed 50% inhibition at 500 μ g/mL under the same conditions.

Key words [PESTICIDES](#) [CHEMICAL COMPOSITION](#) [BIOLOGICAL ACTIVITY](#) [PLANT VIRUS DISEASES](#) [INDOLE ALKALOIDS](#) [ALKALOID](#) [TYLOPHORA OVATA](#) [TOBACCO MOSAIC VIRUS](#) [POTATO X DISEASE VIRUS](#) [LONING](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(0KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“牛心朴子草” 的相关文章](#)

▶ 本文作者相关文章

- [姚宇澄](#)
- [安天英](#)
- [高俊](#)
- [杨昭](#)
- [于学舜](#)
- [金钟](#)
- [李广仁](#)
- [黄润秋](#)
- [朱常香](#)
- [温孚江](#)