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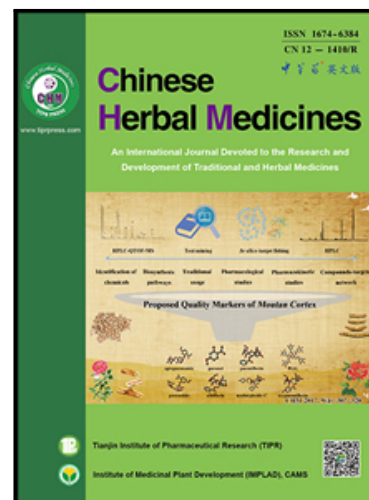
Yan-mei Pang , Qi Shan , Fu-jun Zhou , Jie Hua , Wen-bin Hou

PII: S1674-6384(18)30010-8  
DOI: [10.1016/j.chmed.2018.01.007](https://doi.org/10.1016/j.chmed.2018.01.007)  
Reference: CHMED 16

To appear in: *Chinese Herbal Medicines*

Received date: 3 May 2017  
Revised date: 28 August 2017  
Accepted date: 13 September 2017

Please cite this article as: Yan-mei Pang , Qi Shan , Fu-jun Zhou , Jie Hua , Wen-bin Hou , Chemical Constituents and Pharmacological Effects of Genus Engelhardia, *Chinese Herbal Medicines* (2018), doi: [10.1016/j.chmed.2018.01.007](https://doi.org/10.1016/j.chmed.2018.01.007)



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# Chemical Constituents and Pharmacological Effects of Genus *Engelhardia*

Yan-mei Pang<sup>1,2</sup>, Qi Shan<sup>2</sup>, Fu-jun Zhou<sup>2</sup>, Jie Hua<sup>2</sup>, Wen-bin Hou<sup>1,2,3\*</sup>

1. Tianjin Medical University, Tianjin 300070, China

2. Tianjin Institute of Pharmaceutical Research, Tianjin 300193, China

3. State Key Laboratory of Drug Delivery Technology and Pharmacokinetics, Tianjin Institute of Pharmaceutical Research, Tianjin 300193, China

**Abstract:** *Engelhardia* Leschen. ex Blume (Juglandaceae) is native to southern and southeastern Asia and used to be traditional medicines and health tea. Hitherto, a large amount of chemical constituents had been isolated from genus *Engelhardia* and more pharmacological effects were found due to the presence of the second metabolites. There have been few comprehensive reports about *Engelhardia* plants especially the chemical constituents by now. The traditional usage of *Engelhardia* plants were for treating cold fever, detoxication, rheumatism, diarrhea, obesity, gastrointestinal problem and so on. While the modern pharmacological activities showed antioxidant activity, anti-ischemia/reperfusion injury, anticancer activity, anti-inflammatory activity, immunosuppression activities, antidiabetic activity, antitubercular activities and so on. In this review, constituents of this genus would be introduced and classified by structures, pharmacological effects would be described as well.

**Key words:** chemical constituents; *Engelhardia*; pharmacological effects

## 1. Introduction

*Engelhardia* Leschenault ex Blume is a genus in family Juglandaceae endemic to tropical and subtropical region of southern and southeastern Asia (Figure 1). The habitats of these woody plants are mainly in forests from sea-level to about 2000 meters altitude. According to *Flora of China* (Kuang, Zheng, and Li, 1979), there are about 15 species in the genus *Engelhardia*, six of which spread in China, namely *E. aceriflora*, *E. colebrookiana*, *E. fenzlii*, *E. roxburghiana*, *E. serrata*, *E. spicata* Bl. By now, the actual number of the

species in China and worldwide is still open to question (Lu et al, 1999). The typical model of the genus *Engelhardia* is *E. spicata* Bl, but *E. roxburghiana* (also named *E. chrysolepis* or *E. formosana* in some papers) is more often mentioned. Plants in genus *Engelhardia* contain a large number of constituents, and showing many different biological activities, including traditional use and pharmacological effects found in the present study. Therefore, the summary and classification of the constituents and pharmacological effects are conducive to understanding this genus. In addition, it will give the appropriate reference for further study of the genus.

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