

Insecticidal Compounds from *Tripterygium wilfordii* Active against *Mythimna separata*

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Z. Naturforsch. **59c**, 421–426 (2004); received December 9, 2003/January 12, 2004

In the course of screening for novel naturally occurring insecticides from plants, the ethanol extract of the root bark of *Tripterygium wilfordii* Hook f. was found to show insecticidal activity against larvae of *Mythimna separata* Walker. Three active compounds were isolated by bioassay-guided fractionation of the extract and characterized as triptolide (**1**), triptonide (**2**) and euonine (**3**) by IR, ¹H and ¹³C NMR and mass spectral analysis. Compounds **1** and **2** showed strong contact activity against 3rd or 5th larvae of *M. separata* (LD₅₀ 1.6 µg/insect for **1**, 2.9 µg/insect for **2**, no contact activity for **3**; LD₅₀ is the lethal dose for 50% mortality). The antifeedant activity against the 3rd larvae of *M. separata* after a 24-h treatment was demonstrated; **1**, **2** and **3** gave EC₅₀ (effective concentration causing 50% antifeedance) values of 0.25, 0.35 and 0.02 mM, respectively. **1** and **2** were inferior to the positive control represented by toosendanin (12 α -acetoxyamoorastatin), **3** was superior to toosendanin. For the ingested toxicity against *M. separata*, **1** had the more potent activity with an KD₅₀ value of 13.5 µg/g (insect body weight) than toosendanin. This is the first report on insecticidal activity of these three compounds.

Key words: *Tripterygium wilfordii*, Insecticidal Compounds, *Mythimna separata*