

# Sesquiterpenes and Phenolic Compounds from *Achillea clypeolata*

Ingrid Werner<sup>a</sup>, Pavel Mucaji<sup>a,b</sup>, Armin Presser<sup>c</sup>, and Sabine Glasl<sup>a</sup>

<sup>a</sup> Department of Pharmacognosy, University of Vienna, PharmaCenter, Althanstraße 14, A-1090 Vienna, Austria

<sup>b</sup> Institute of Pharmacognosy and Botany, Comenius University, Pharmaceutical Faculty, Odbojarov 10, SK-83232 Bratislava, Slovakia

<sup>c</sup> Institute of Pharmaceutical Sciences, Karl-Franzens-Universität Graz, Universitätsplatz 1, A-8010 Graz, Austria

Reprint requests to Dr. S. Glasl. Fax: +43 1 4277 9552. E-mail: sabine.glasl@univie.ac.at

*Z. Naturforsch.* **2007**, 62b, 267 – 271; received June 27, 2006

The investigation of a dichloromethane extract of flower heads of *Achillea clypeolata* collected in Bulgaria led to the isolation of one guaiane (4,10,11-trihydroxy-guaiane, **1**), four eudesmanes (4(15)-eudesmene-1 $\beta$ ,11-diol, **2**, clypeotriol, **3**, 3-*epi*-clypeotriol, **4**, cryptomeridiol, **5**), one diterpene (sugeroside, **6**) and two phenolic compounds (centaureidin, **7** and scopoletin, **8**). Their structures were elucidated by UV/vis, EI- and CI-MS as well as by one- and two-dimensional NMR experiments. 4,10,11-Trihydroxy-guaiane (**1**) and 3-*epi*-clypeotriol (**4**) are reported here for the first time.

*Key words:* *Achillea clypeolata*, Sesquiterpenes, Phenolic Compounds