

## Germacranolides of *Erlangea cordifolia*: structure and absolute stereochemistry of cordifene and cordifene 4 $\beta$ , 15-oxide by X-ray and spectroscopic methods

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### **Abstract:**

Cordifene and cordifene 4 $\beta$ ,15-oxide, extracted from the insect-antifeedant plant *Erlangea cordifolia*, have been examined by spectroscopic and X-ray techniques. Cordifene is shown by X-ray analysis (R 5.49%) as its 5-bromo-2-furoate (3c) to be the 8-angelate ester of a 1R,2S,3S,5S,6S,7R,8S,10R-6,7-lactonised dihydroxygermacranolide bis-epoxide (3a). Cordifene 4 $\beta$ ,15-oxide, having three contiguous epoxide groups and nine chiral centres, is the 4R-derivative (2a), as demonstrated by direct X-ray methods (R 3.2%): its absolute configuration is linked to (3a) by c.d. methods. On the basis of Stöcklin's rules, the signature of the  $n \rightarrow \pi^*$  c.d. maximum leads to an incorrect absolute configuration for both compounds, but the Beecham-McPhail treatment satisfactorily explains the situation. <sup>1</sup>H N.m.r. data indicate that solution conformations are similar to crystal conformations.