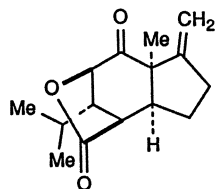
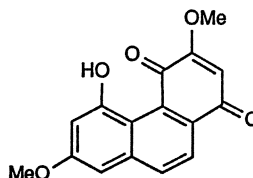


In addition to the alkaloids, a related sesquiterpene nobilomethylene (57-15) [11] and a phenanthraquinone denbinobin (57-16) [16] were also found in *D. nobile*.



Nobilomethylene (57-15)

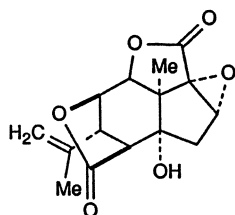


Denbinobin (57-16)

57.3 Pharmacology

Dendrobine hydrochloride showed a slight but demonstrable analgesic and antipyretic action, produced moderate hyperglycemia, diminished cardiac activity in large doses, lowered blood pressure, depressed respiration, inhibited isolated rabbit intestines, and contracted isolated guinea pig uteri. The minimal lethal dose of dendrobine by intravenous injection was 20 mg/kg in mice and rats, 22 mg/kg in guinea pigs, and 17 mg/kg in rabbits. Death was preceded by convulsions, which appear to be central in origin [17].

The effects of dendrobine and nobiline on the electric activity and on amino acid induced depolarizations of primary afferent terminals were studied in the frog spinal cord and compared with those of picrotoxinin and strychnine [18]. Picrotoxinin is a sesquiterpene isolated from some menispermaceous plants such as *Anamirta cocculus* and *Tinomisium philippinensis* and strychnine is an alkaloid obtained from *Strychnos* species. Both picrotoxinin and strychnine are potent convulsant agents. Moreover, the sesquiterpene lactone picrotoxinin (57-17) shows a structural similarity with the sesquiterpene alkaloid dendrobine. The effects of dendrobine were qualitatively similar to those of strychnine but were somewhat different from those of picrotoxinin [18].



Picrotoxinin (57-17)

References

1. Lars G (1976) Studies on some *Dendrobium* (Orchidaceae) constituents. Chem Commun (Univ Stockholm) 2:14
2. Chen KK, Chen Ling A (1935) The alkaloid of chin-shih-hu. J Biol Chem 111:653-658