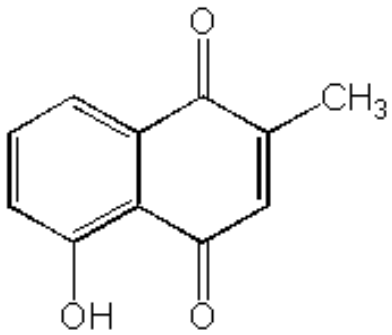
Molecules **1999**, *4*, M93

Plumbagin from *Diospyros olen*

Philip H. Evans[1], William S. Bowers[1], Marc Litaudon[2] and Thierry Sevenet[3]

[1]Department of Entomology, The University of Arizona, Tucson, Arizona, USA. Tel. 520-621-7166, (wbowers@ag.arizona.edu).
[2]CNRS, Laboratoire des Plantes Medicinales, Parc Forestier de Montravel, B.P. 643 Noumea, Nouvelle-Caledonie. Tel. (687) 28 12 54, (litaudon@cnrs.nc)
[3]ICSN/CNRS 91198 Gif-sur-Yvette Cedex, France. Tel. (33-1) 69 82 31 03 (sevenet@icsn.cnrs-gif.fr).

Received: 3 February 1999 / Published: 16 April 1999



Plumbagin (5-hydroxy-2-methyl-1,4-naphthoquinone) (CAS Reg. No. 481-42-5) was isolated from the bark of *Diospyros olen* (Ebenaceae) *via* an antibiotic guided biological assay using the bacterium *Pseudomonas solanacearum*. *D. olen* bark, collected in New Caledonia, was extracted with dichloromethane and components separated by flash chromatography on silica. Plumbagin eluted with 30% diethyl ether in hexane. Further purification by preparative silica TLC developed with dichloromethane and by sublimation gave orange crystals. Plumbagin is a natural product of higher plants, previously found in the family Ebenaceae [1,2]. This is the first report of the occurrence of plumbagin in *D. olen*. [3].
M.p. 72-73°. Reported 78-79°
MS (m/z,70eV): 188 (100%), 173 (25), 160 (23), 131 (38), 120 (20), 92 (21), 63 (1 8).
^{1}H-NMR ($CDCl_3$): 2.20 (s, 3H), 6.81 (d, 1H), 7.25 (m, 1H), 7.62 (m, 2H), 11.95 (s, 1H).

Acknowledgment: The National Science Foundation Grant BIR 9419402, National Geographic Society Grant #5426-95.

References and Notes

1. Robinson, T. *Organic Constituents of Higher Plants*, 6th ed., Cordus Press, North Amherst, MA. 1991.
2. *Dictionary of Natural Products* v.3, p.3105. Chapman and Hall, London, 1994.
3. We reported in this short note the isolation and identification of plumbagin from a plant indigenous to New Caledonia. Although identified previously from the plant "plumbago" this is the first time it has been found in *Diospyros olen*. New Caledonia was part of the ancient megacontinent "Gondwanaland" which split into parts of present day Antarctica, Chile, New Zealand, New Caledonia, Australia, New Guinea and other small isolated islands. While the original plant source of this compound, plumbago, is indigenous to the old world it is still retained in related plants after a possible 350 million years. It is estimated that New Caledonia has been separated from Gondwanaland for about 260 million years and allowing for the separation of the new and old worlds of an additional 100 million years yet this same chemistry is conserved as a very potent antibiotic which doubtless protects plants from numerous pathogens.

Sample Availability: Aldrich Chemical Co.