

CAPSIDIOL: AN ANTIFUNGAL COMPOUND PRODUCED IN *NICOTIANA TABACUM* AND *NICOTIANA CLEVELANDII* FOLLOWING INFECTION WITH TOBACCO NECROSIS VIRUS

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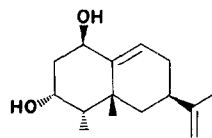
Key Word Index—*Nicotiana tabacum*; *Nicotiana clevelandii*; Solanaceae; tobacco necrosis virus; sesquiterpene; capsidiol; antifungal.

Plants. *Nicotiana tabacum* (cv. White Burley), *Nicotiana clevelandii*. **Previous work.** Many phenolic compounds found to accumulate after infection of *N. tabacum* with tobacco mosaic virus[1]. Eudesmane-type sesquiterpene, 1-keto- α -cyperone found in *N. tabacum*[2].

Present work. Young plants (4–8 weeks old) were inoculated with TNV in aq suspension. When brown lesions had formed (5–7 days) the leaves were harvested, frozen and extracted with C_6H_6 . Using the *Cladosporium cucumerinum*-thin layer plate assay[3], a single major antifungal zone was observed with extracts of both species. The active compound was purified by TLC (hexane–acetone, 3:1) and eventually obtained as colourless needles, m.p. 152–154°, from Et_2O –light petroleum. It was identified as capsidiol, which has been previously isolated and characterised[4] from sweet pepper and which has known fungitoxic properties[5], by comparison of PMR and MS and by direct comparison (TLC, GLC and mixed m.p.) with an authentic specimen, m.p. 152–153°. Capsidiol was not detected in extracts of uninoculated leaves.

Biological significance. The results are similar to those obtained with various legumes[3,6] and with *Nicotiana glutinosa*[7] and provide further evidence that tissues which are necrotic as a result of

infection with a virus usually contain antifungal compounds. In *Phaseolus vulgaris* these compounds are phytoalexins[3]. It thus seems likely that capsidiol, which was originally isolated as a phytoalexin from sweet pepper[5], may have a similar function in *Nicotiana tabacum* and *N. clevelandii* and hence be involved in disease resistance.



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