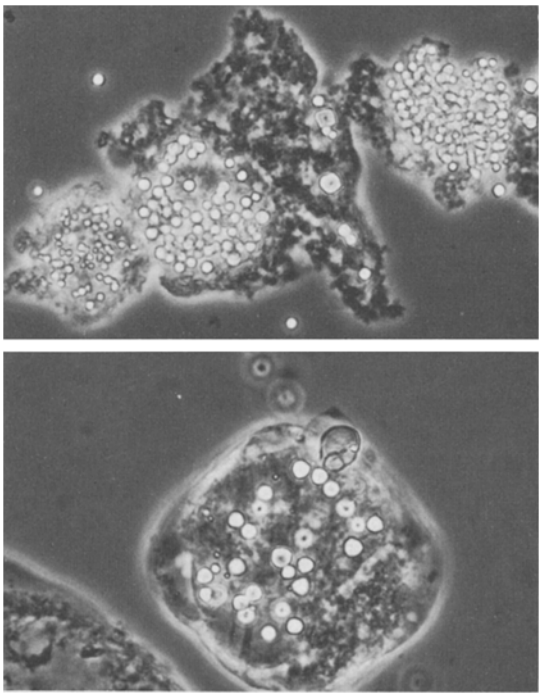

Fig. 1. (a) NPV of *Autographa californica*: cubic inclusion bodies in the nuclei of Mb 0503 cells; 10 mm = 19 µm; (b) NPV of *Mamestra brassicae*: polyhedral inclusion bodies in the nucleus of a Mb 1203 cell; 10 mm = 13 µm

*A. californica*-NPV is possible in the two *M. brassicae* cell lines tested. In another series of experiments with suspension cultures *A. californica*-NPV replication was also observed in at least 10 subsequent subcultures of Mb 0503 and Mb 1203. The percentage of infected cells is similar to that measured in the respective monolayer cultures.

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## 2-Phenylethanol Isolated from Bark Beetles

J.A.A. Renwick, G.B. Pitman, and J.P. Vité*

Boyce Thompson Institute, Yonkers, New York 10701

The presence of 2-phenylethanol in emergent males of *Dendroctonus brevicomis* LeConte and feeding males of *Ips paraconfusus* Lanier has been discovered. Field bioassays indicate that this alcohol is involved in the chemical communication system of *I. paraconfusus*.

Gas chromatographic (GC) analyses of hindguts from emergent *D. brevicomis* revealed the presence of a fragrant-smelling compound in males, which was not detected in females. Hindguts from about 2,000 emergent male beetles were extracted with ethyl ether, and the unknown material was analyzed by combined gas chromatography–mass spectrometry. The mass spectrum indicated a molecular weight of 122, and major fragments at m/e 91 (base peak), 92 and 65 were characteristic of 2-phenylethanol. The mass spectrum and GC retention times (FFAP and OV-1 columns) of an authentic sample of 2-phenylethanol were identical to those of the natural material.

A compound with the same GC retention time was detected in the hindguts of *I. paraconfusus* males which had fed in ponderosa pine billets. The identity of this compound as 2-phenylethanol was confirmed in the same manner, using hindguts from feeding male beetles as the source of material. No 2-phenylethanol was detected in female beetles.

In field bioassays, the response of *D. brevicomis* to its known attractant (frontalin + exobrevicomin + terpenes) [1, 2] was not significantly affected by the addition of 2-phenylethanol. However, the response of *I. paraconfusus* to male-infested log sections in funnel olfactometers [3] was considerably higher when 2-phenylethanol was added. In bioassays conducted in Grass Valley, California, between 29 June and 10 August, 1975, each of two olfactometers was baited with a ponderosa pine billet in which 25 male *I. paraconfusus* had been feeding for a period of 3 to 5 days. The 2-phenylethanol was dispensed from a 1-mm diameter glass capillary tube held in a horizontal position in one olfactometer for the duration of each daily test (9.00 to 21.00 h). The 2-phenylethanol was switched to the other olfactometer before each new test. The average number of *I. paraconfusus* responding to the infested billet alone was 78.9, with a range of 32 to 156 for 9 tests, and the sex ratio of responding beetles was 1:2.0 (males:females). With the addition of 2-phenylethanol, an average of 116.2 beetles, with a range of 45 to 225, were caught, and the sex ratio was 1:2.5. This 47% enhancement of response, along with the production of the compound by the beetles during their stage of highest attraction [3], suggests that 2-phenylethanol plays some role in the aggregation of *I. paraconfusus*. Although three compounds involved in the pheromone system of this beetle have been identified [4], synthetic mixtures have not been as effective as the natural attractant [5]. 2-Phenylethanol is known to be a component of secretions from male scent brushes of certain Lepidoptera [6], but its presence in bark beetles was previously unreported.

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* Present address: Forstzoologisches Institut der Universität, Bertoldstr. 17, D-7800 Freiburg i. Br., Federal Republic of Germany.

## Heterochromatin Underreplication in *Tropaeolum* Embryogenesis

W. Nagl, C. Peschke, and R. van Gyseghem

Department of Biology, University of Kaiserslautern

Heterochromatin underreplication is a phenomenon frequently observed during the polyploidization and polyteniza-

 