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IDENTIFICATION AND FUNCTIONS OF SECRETION FROM THE POSTERIOR SCENT GLAND OF FIFTH INSTAR LARVA OF THE BUG *DYSDERCUS INTERMEDIUS*

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Abstract—Secretion from the posterior scent gland of fifth instar larvae of *Dysdercus intermedius* Dist. (Hemiptera: Pyrrhocoridae) was analysed by a combination of gas chromatography and mass spectrometry. Eight compounds, usually comprising more than 99.9 per cent of the secretion, were identified: *n*-dodecane, *n*-tridecane, *n*-pentadecane, hexanal, hex-2-en-1-al, 4-oxohex-2-en-1-al, oct-2-en-1-al, and 4-oxo-oct-2-en-1-al. Traces of four additional components were occasionally present.

The whole secretion, but not its constituent hydrocarbons, causes *D. intermedius* to disperse from its aggregations. Hexanal and *trans*-hex-2-en-1-al, although minor components of the secretion, also produce this effect and seem to be the first alerting pheromones identified in the Hemiptera. The secretion may possess two functions: (1) as a defence against predators and (2) as an alerting pheromone warning and dispersing other individuals in an aggregation.

INTRODUCTION

THE COMPONENTS of defensive secretions produced by various species of arthropods can be classified in groups of terpenes, quinones, and a miscellaneous group of aliphatic and aromatic compounds (WEATHERSTON, 1967). More is known about the chemistry of the defensive secretions than about any other type of insect secretion; the nature of insect pheromones, apart from certain sex pheromones, is largely unknown (BUTLER, 1967). Within the Hemiptera-Heteroptera, nearly thirty species in ten families are known to produce glandular secretions consisting predominantly of hydrocarbons and carbonyl compounds (Table 3). These secretions are believed to serve a defensive function because they are produced when the insects are disturbed or irritated and are often directed towards the source of irritation (REMOLD, 1963). However, that of *Lethocerus indicus* Lep. may possibly be a sex attractant (BUTENANDT and TAM, 1957). Usually only secretions from adult bugs have been analysed, but adults and larvae of *Tessaratoma aethiops* Dist. produce secretions of different composition (BAGGINI *et al.*, 1966).

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