

Sexual Dimorphism in Scent Substances and Cuticular Lipids of Adult *Papilio protenor* Butterflies

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Adults of *Papilio protenor demetrius* emit a faint odour; the male odour is notably stronger than that of the females. The extracts of whole individuals of each sex comprised 53 compounds regarded as cuticular lipid components, of which the 17 major compounds were straight-chain alkanes and alkenes with 23–31 carbon atoms, higher fatty acids, long-chain aliphatic ketones, squalene, and cholesterol. However, highly volatile compounds were not detected in the whole individual extracts. Eight of the 17 major compounds showed a significant sex difference in relative abundance per individual. Principal component analysis, using the major compounds as variables, revealed a marked sexual dimorphism in the chemical composition of cuticular lipids. From the extracts of 10 dissected individuals of each sex, 21 highly volatile compounds were identified in amounts of less than 200 ng/individual. Among them, linalool and 2,3-butanediol showed a significantly larger amount in males than in females, indicating that the adult odour is also sexually dimorphic. Moreover, both sexes shared several odoriferous compounds, such as heptanal, nonanal, methyl salicylate, benzyl alcohol, and benzoic acid. The faint odour of *P. protenor* adults, perceivable by the human nose, appears to originate from these volatile compounds.

Key words: *Papilio protenor demetrius*, Adult Scent, Cuticular Lipid