

OR268*Decoding the biosynthesis of hydrocarbons in ants***Sue Shemilt, Falko Drijfhout**

Within social insect species colony signatures are required so that altruistic behaviour can be appropriately directed. It is widely accepted that within ant species nest-mate discrimination is down to a chemical signature determined by the cuticular hydrocarbons present. Previous work involving *Formica exsecta* looked at the incorporation of labelled hydrocarbons within a very simple hydrocarbon profile of just alkenes and alkanes. Using such species as *F. lugubris* we hope to be able to replicate this work and investigate the incorporation of labelled hydrocarbons into the many methyl branched hydrocarbons that this species exhibits. Preliminary studies involve feeding small groups of ants ad libitum a diet containing amino acids, acetates or acids, labelled with either carbon-13 or deuterium atoms. At different time intervals the cuticular hydrocarbons were extracted with hexane and these extracts were analysed using gas chromatography coupled to mass spectrometry. By studying which of the substrates are incorporated into the cuticular hydrocarbon profile and the amount of each present, it is hoped that more information on the biosynthetic pathways that are employed can be determined. Additional experiments using these substrates are planned in order to obtain more insight into the formation of the gestalt odour. It is hoped that results from this study will be presented in view of previous studies looking at the source and maintenance of the CHC profiles in ants.