PRELIMINARY RESULTS ON COMPARATIVE GC ANALYSES OF VOLATILES PRODUCED BY THE COFFEE BERRIES

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Recent evidence for allelochemical relationships between the coffee borer : *Hypothenemus hampei* (Ferr.) and the coffee : *Coffea sp.* (Giordanengo et al., in press) led us to investigate by chemical analyses (GC, GCMS) the volatiles produced by Robusta coffee berries.

GC analyses of either pentanic or acetonic washes of green and red coffee berries showed quantitative differences in resolved peaks. These solvents were choosen to extract repectively aliphatic and cyclic hydrocarbons for the pentane and alcohols, aldehydes and acids for acetone.

Pentanic washes contained more volatile compounds than acetonic washes; however, differences between washes of fresh green berries and fresh red berries.were more noticeable with acetonic washes. Fresh red berry have been found by biological tests to be more attractive than fresh green berry and thus the differences observed in the chemical composition of the washes could account for the preferential selection of the red berry by the scolytes. All these compounds are now being identified using GC-MS and structures such as sesquiterpenes, acids, aldehydes, and esters have been determined.

Further behavioural tests will be conducted to determine whether all the differences shown by GC have biological significance.

The Identification of volatile attractants could aid in the management of the coffee berry borer by providing lures for traps which could be used to monitor pest populations.

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INTRODUCTION

Recent studies on the coffee berry borer have provided evidence that female borers use volatile chemicals from the host to locate feeding and oviposition sites. Pentane and acetone extracts of mature and immature berries were tested for biological activity and then were analysed using GC and GC-MS.

MATERIAL AND METHODS

- Volatile extractions

Either red or mature green berries were extracted within 2 or 4 hours after field collection:

CONCLUSION

Further behavioural tests will be conducted to determine whether all the differences shown by GC have biological significancThe Identification of volatile attractants could aid in the management of the coffee berry borer by providing lures for traps which could be used to monitor pest populations.

REFERENCES :

Giordanengo, P., Brun, L.O., Frérot, B. First evidence for allelochemichal relation between the coffee berry borer and its host plant. J. Chem. Ecol. (submitted).