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Biannual Progress Report # 3
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Title: Identification and characterization of genetic strains in whiteflies

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Period covered: July-December, 1988

I. Activities:

In both countries the main activities were the collection and electrophoresis of whiteflies, as scheduled.

In Israel, a total of 120 samples were collected this summer (in addition to the 160 collected earlier) and the total number of individual whiteflies examined now exceeds 8000. Earlier conclusions seem to be supported by the additional data: there is no evidence for host-related differentiation of B. tabaci in Israel, but there seem to exist inter-locality differences in frequencies of the two Esterase alleles. We continue with attempts to relate these differences with insecticide resistance. We also continue efforts to find additional enzyme markers for whiteflies.

In Colombia, also, more samples were collected and examined electrophoretically during the summer (see Part II of this report). The number of individuals analyzed to date is approximately 1300, belonging to several species but mainly B. tabaci.

Species-specific electrophoretic patterns of whiteflies, which were mentioned in Report #2, were investigated further this summer, and a paper on identification of adult whiteflies using electrophoresis has been submitted and accepted for publication. The paper is authored by all the collaborators in this project.

Cooperation between the two countries continues by correspondence. All electrophoretic data collected so far in both countries are stored in the computer at Tel Aviv University and additional data are stored and partly analyzed almost as soon as they arrive.

II. Report of a visit by D. Wool to CIAT in August, 1988.

As planned, I traveled to and spent about four weeks at CIAT in August,

1988. I met with some officials, including Dr. D.R. Laing, Acting Director General, and the leaders of the cassava, bean and genetic resources programs. This being my second visit to CIAT, the emphasis was on the analysis of data collected there during the past year, and the preparation of recommendations for research in the coming months. I also went on two collecting trips with CIAT personnel to collect field samples for future analysis.

In the preceding 7 months, some good electrophoretic data were obtained at CIAT on laboratory (greenhouse) colonies of Bemisia tabaci. A small number of samples from the field, of B. tabaci and other species, were collected on some native host plants. Only one enzyme system (Esterase) was used in a sufficient number of gels to permit some tentative conclusions to be drawn.

These limited data indicate that each species seems to have a characteristic isozyme pattern which may be used for species identification at the adult stage. Moreover, the data seem to support our initial assumption that genetic differentiation does exist within B. tabaci. It is not possible to say at this point whether the intra-species differentiation in Colombia is host- or locality-related.

I have prepared a list of recommendations for the CIAT partners, the most important ones being to concentrate all efforts on field-collected samples and to get some additional technical help on the project in order to increase the electrophoretic output.

In conclusion, my visit to CIAT was very important for focusing attention and efforts on the more important aspects of this joint research program.



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