

## SUMMARY AND GENERAL CONSIDERATIONS

As described earlier, a considerable proportion of the food produced is lost to insect pests. Synthetic pesticides are widely promoted as the solution. However, these have adverse effects on the environment, are expensive and become ineffective as pest develop resistance. About 2000 species of plants are known to have insecticidal properties. Natural plant chemicals from locally available species may play an important role in future practice of pest control, not only in the developing countries but also in the industrialised ones. As stated at the outset of this work, the aim was to identify plant products of some common locally available plant species, which could be effectively employed for the management of infestation by the cigarette beetle, L. serricorne F. of stored commodities.

To understand the problem in all possible details, the present work was undertaken. The first phase of present work (Chapter 1), therefore, was to screen the effect of fresh and dried leaves of 52 locally available plant species (29 families) for possible deterrent or arrestant action on adult test insect employing "choice chamber" method and leaf-discs stack. Out of these leaves of 14 plant species were found effective in showing either deterrent or arrestant properties. These were 10 species

Stubbs, et al., 1985; Tipping, et al., 1987 &c.) or as repellents (Villani and Gould, 1985<sup>a</sup>; Hongo and Karel, 1986; Mia, et al., 1986; Pandey, et al., 1986; Su, Helen, 1986 & 1987<sup>b</sup>; Harish and Ahmed, 1987; Neeta, et al., 1987 and Jilani, et al., 1988 &c.) or as antifeedants (Antonious and Tetsuo, 1982; Belles, et al., 1985 and Villani and Gould, 1985<sup>b</sup> &c.). In the present context, apart from the fact that extracts of plants were employed for deterrent and arrestant/attractant properties like many other person, what was remarkable was the components of various extracts that were highly potent attractants as well as those possessing intense deterrent/repellent influences, both comprised of alkaloid fractions. Two things need be emphasized here \_\_\_\_ (1) It was for the first time alkaloids were shown to act as deterrents (2) Some other alkaloidal fractions only were also shown to act as arrestant/attractants. A third significant point pertained to hetherto unsuspected that the essential oils of D. plumieri did not act as attractants. A survey of pertinent literature (cited here or otherwise) would reveal that most of the agents studied by others were various terpenoid derivatives, essential oils, glyceride derivatives and volatile derivatives/fractions. It, therefore, appears to be the first report on alkaloids, in this context.

One of the purposes of the present investigation was to identify some common local plant species the products of

which could control infestation of stored products by cigarette beetle, L. serricorne F. Other point considered was to find out easy methods of extract preparation even by a common man. To a certain extent the author has been successful in locating at least 7 very common plant leaves, seeds of one and dried fruits of another, which could be subjected to simple extraction procedures for obtaining crude extracts that are usable as such for containing the L. serricorne F., infestation. By way of academic interest, this author also tried to isolate maximally active fractions of crude extracts. This academic exercise was performed with a view to get an idea about chemical nature of such fraction to provide material for further work to find out if these substances could be synthesized in the laboratory, so as to avoid total dependence on nature, in the fight against one of the highly damaging insect pests primarily of cured tobacco leaf stores and secondarily of a variety of other stored foods as well as spices.