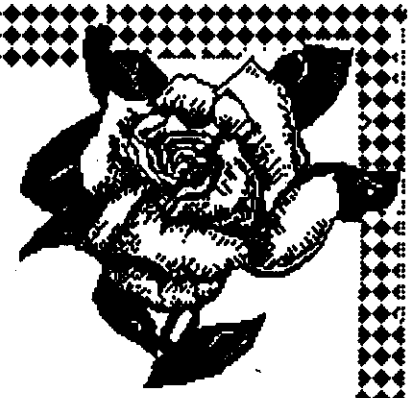
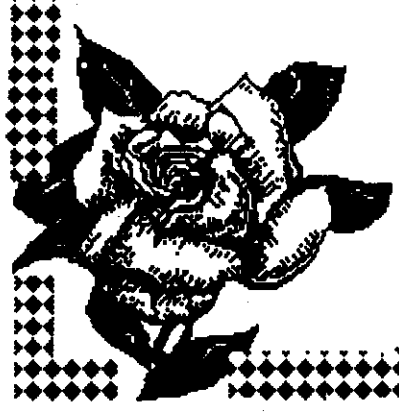


INTRODUCTION



I - INTRODUCTION

Year after year, insect pests cause heavy losses in food and other crops, particularly in tropical and subtropical regions. In addition, they create serious health problems by transmitting pathogens of man and livestock. Consequently, considerable and steadily increasing amounts of pesticides are applied to prevent crop losses and transmission of diseases. Pesticides application may however, have a negative impact on the environment, and pest resistance of pesticides can develop after repeated applications. Therefore, the search for new compounds with satisfactory properties concerning their effects on the target pests, as well as on the environment , is urgent. As many developing countries are, for finantial reasons, not in a position to import synthetic chemicals from abroad, it is necessary to find new sources for pesticide production on at least a small scale in the regions concerned. Accordingly, attention has been given recently, to isolate and identify various naturally bioactive compounds, possessing insecticidal properties, from plant sources.

Historically, the commercial development of botanical insecticides is credited to a lady of Ragusa, Dalmatia, who noticed dead insects on discarded bouquet of pyrethrin flowers. She began milling pyrethrum into powder and thus the pyrethrin industry born ***(Hartze and Wilcoxon, 1941).*** Since then, pyrethrins from *Chrysanthenum*

flowers and many synthetic derivatives stand prominent as effective pesticides.

Natural products offer a great potential for the development of new pesticides since they are often less toxic and unstable in comparison to their synthetic counterparts. It is known that most botanical extracts are nontoxic to warm - blooded animals and have no oral toxicity to mammals and show no or moderate side effects on natural enemies of insect pests ***(Schmutterer, 1985).***

Much of the efforts to develop these nontoxic, safe, and biodegradable natural products, have been concerned by their use as antifeedants that influence chemosensory behaviour of insects growth regulators and growth inhibitors ***(Deshmukh and Renaparkar 1987)*** that act upon the physiological processes of insects and as agents of strong fecundity reducing effects ***(El-Zoghby et al. 1985)*** .

It is worth to say that plants attracted the attention of entomologists and chemists for their inherent and well established toxicity to various insects. Phytochemicals were extracted from either whole plants or specific parts of the plant, depending on the activity of the derivatives. Some plants accumulate bioactive chemicals in leaves, fruits, flowers, roots and bark. Active ingredients in some plant products used as insecticides are alkaloids which occur in plants as salts of organic acids characteristic of the plants species. Alkaloids of

most importance as insecticides are : nicotine, nornicotine, anabasine, cinchona, veratrin, pelletieriue and coniine. Many plant constituents other than alkaloids possess insecticidal properties.

Plants of desert flora , have developed more efficient and varied defense mechanisms. They, thus provide a rich source for isolating natural products, with insecticidal properties.

The common house fly, *Musca domestica* is one of the common species found in human habitations, in torpical and subtropical regions. It has gained importance as a serious public health hazard being a vector of some serious diseases like eye diseases, Cholera, Typhoid and Dysentries. Although problems become more acute as our civilization becomes more complex and our population increases. Genarally, housing developments accentuate the fly problem because they provide new and sometimes better habitats for this insect.

Successful fly control is achieved when various methods are integrated in an overall program. Modern fly control methods involve three inter - related approaches, namely source reduction, use of biological control methods ; and control with insecticides . Conventioal insecticides play an important role in the overall fly suppression programs. However, the intesive use of insecticides has been challenged, especially by the house fly, by the development of resistance of these chemicals. Among the alternate methods

investigated as substitutes for insecticides against flies, is the use of botanical extracts.

The present study deals with the effect of botanical extracts of four plants ; *Hyoscyamus muticus, Datura stramonium, Calotropis procera* and *Zygophillum album* extracted with two solvents of different polarities, on some developmental stages of *Musca domestica.* Toxicological, morphological and biochemical changes due to treatment with those extracts, are also studied.