INTRODUCTION

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The universal challenge before the mankind today is to help agriculture throughout the world to meet its requirements of food, feed and fibre. Since the beginning of cultivation of crops for human use it has been important to protect crops from pest and disease. During the ancient times, human had to live with and tolerate the revange of insects and other pests,but gradully learned to improve their condition through trial and error experiences.Over the centuries,farmers developed a number of mechanical,cultural,physical and biological control measures to minimise the damage caused by phytophagous insects.

Pests have been inflicting heavy losses on world agriculture every year. It was estimated that more than one third of the potential food production was lost due to pest infestation and

other damage.It is observed that on an average one third of the problem of pest infestation and plant protection is severe agricultural yield loss due to various pests such as insects, fungi, bacteria, MLOs etc.attained a new dimensions with the introduction of high yielding varities of crops and the synthesis of new pesticides, which are less toxic to human being and which does not cause environmental pollution is an urgent need of the agriculture sectore. Crop losses in India have been estimated to vary from 10 to 30 percent depending on the crops, region and severity of pest infestation (Agnihotri,et.al.1999)[1]. In monetory terms, losses have been estimated to the extent of around Rs.60,000/- crores per year Agnihotri,et.al.1999)[1]. Such losses can be prevented by the use of environmentally safe crop protection chemicals.

Cultural and Mechanical practices like crop rotation, field sanitation, deep ploughing,

flooding, collection and distruction of damaging insects or insect infested plants etc.developed by farmers through experience were among the oldest methods developed by humans to minimise damage caused by insect pests. In an ancient period Chinese used chalk and wooden ash for the control of insect pests in enclosed spaces and botanical insecticides for seed treatment. They also used ants for biological control of stored grain as well as foliage feeding insects.In India, neem leaves were placed in grain beans to keep away troublesome pests. In middle and near east powder of chrysanthemum flowers were used as insecticides(Dhaliwal and Arora,(1998)[2].

Synthetic organic insecticides developed during mid-twentieth century have proved to be useful in increasing agricultural productivity and safegaurding man and his property against pest thus these synthetic pesticides initially provided spectacular control of insect pest and

resulted in the abondonment of traditional pest control practices. This was followed by the development of high yielding varities,together with the application of increasing amounts of fertilisers and pesticides has resulted in manyfold increase in productivity.

Although pesticides have become an integral part of modern agriculture, the indiscriminate and non-judicious use of synthetic pesticides sinse last four to five decades led to wide spectrum of problems like pest resistance to chemicals, resurgence of pest, outbreak of secondary pest, residue in soil and agriculture product, risk to human and animal health besides the environmental pollution (Mahapatra and Gupta, 1998)[3]. These conventional synthetic chemicals thus raised serious ecological problems due to their high cost as well as adverse effect on the environment.

All these factors led to search for safer and more compatible alternatives, to combat these problems among which natural products especially plant derived called botanicals are now emerging as a viable component of IPM strategies on all crops in view of their pesticidal potency as well as efficacy on pest and safety to parasitoids and predators.

The Chinese were probably the pioneers in the use of botanical pesticides as well as biological control methods for the management of insect pests of stored grains and field crops. However, natural products of plant origin have been exploited to a limited extent for their pest control properties. Most of the higher plants species remained unexplored or much less surveyed for their pesticidal properties. The nicotine alkaloids, the pyrethroids, and the rotenoids have long histories of large scale commercial exploitation. Many other plants

elaborated insecticidal substances are known to exist.Most probably more than 2,000 plant species have been examined or causally tested for insecticidal value.

On the basis of folklore information and literature survey, it is noticed that some indegenous plants are found to be the rich source of compounds like alkaloids, flavanoids, terpenoids that have been reported to posses lethal action against agriculture insect pests (Murugan et.al 1998)[4] and hence these plants are found to have potentials for insect pest control. Natural pesticides are considered as safer and alternative sources of toxic principles which are safe, break down rapidly in soil, easily available and less expensive. Natural pesticides are considerably as safer and alternative to toxic synthetic chemicals currently in use. These act as insecticides, antifeedants, growth inhibitors, juvenile moulting hormones,

oviposition deterrents, attractants and repellents (Ayyangar and Nagasampagi 1990)[5]. The plant product involve less cost,easy to apply, free of pollutoion hazards and have the capasity to improve the soil health structurally and nutritionally.(Vats et.al,1994)[6].

Many plant extractives are often highly insecticidal or acaricidal but sometimes they are pharmacologically active for consideration for the present purpose. Botanicals such as Phytostigmine from *Physostigma venenosum* and Pyrithrins from *Chrysanthemum cinerariefolium* served as prototypes for carbamate and synthetic pyrethroid group of insecticides. Further, the typical modes of action of insect hormone mimics and antagonists, insect antifeedants and other insect bioregulators have opened up new opportunities to Chemists and Entomologists seeking biorational approaches to pest control.

Pesticidal potential of many importatnt plants such as *Azadiracta indica, Melia azedarach, Annona squamosa, Annona muricata, Ryaniaspeciosa, Ageratum conyzoides, Pongamia glabra, Madhuca latifolia* etc. has been reinvestigated. The presence of bioactive acetogenins such as annonins, squamocin, asimicin, annonacins and cohibins in twigs, branches, unripe fruits and seeds of several *Annona* plant parts serves as sustainable source for the supply of raw materials for botanical pesticides (Agnihotri,et.al,1999)[1].

At the present time the nicotine alkaloides, the pyrithroids, and the rotenoids have occupied important places in modern insect control practices around the world. There are many other plant and plant extractives that are also being used or has been considered as practical pest control materials for specific purposes.