

**EDITORIAL**

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**PLANT DERMATITIS**

Nature has endowed us with a rich environment where myriads of plants, shrubs, and flowers abound in resplendent glory. In the midst of this bountiful nature, there are innumerable plants which have been found to be hazardous to human health. Since man's encounters with plants and its products grow ever more numerous, it has been increasingly realized that one should know the pathogenetic role of many of its products.

It is of particular interest to us as dermatologists to know some of these plants in detail. It seems astonishing that until very recently not much attention has been paid to these aspects and our knowledge was meagre regarding the botanical, phytochemical and immunological aspects of plant dermatitis.

It is heartening to know that much light has been thrown on these aspects recently by many workers and the explosion of knowledge is phenomenal. We have now an accurate compilation of detailed information in standard references so much so that a new branch '*Botanical Dermatology*' has emerged. But there is paucity of information regarding our plants and our environment. There is hardly any standard reference manual, even though we have a large number of plants causing dermatitis and various skin injuries.

This multi-faceted problem needs the cooperative endeavour and synthesis of efforts of our botanists, biochemists, immunologists and dermatologists to bring forth an up-to-date manual of our plant dermatology which will be of standard reference in the years to come.

When we discuss about plant dermatitis in our country, it invariably centres around *Parthenium Hystrophorus* (P.H.), of which much work has been done in this field. P.H. is a flowering plant, ubiquitous in nature, growing like wild-fire in many parts of our country. By now the name *Parthenium* has become very familiar to all of us. Many workers have reported from different parts of our country the adverse effects of this plant on human beings, live stocks and food crops. The varied clinical expressions of parthenium dermatitis is well documented. A large cross section of the people are sensitized to parthenium even though the clinical expression of this sensitization is seen in a relatively small percentage. The incidence of parthenium dermatitis seems to be on the increase. Our workers have now standardised convenient patch test materials for field surveys and large scale routine testing of suspected cases. Similar routine tests can be devised for other plants also. The principal sensitizing chemical parthenin, a major sesquiterpene lactone

which is responsible for delayed hypersensitivity reaction has been isolated from different parts of the plant, by using high performance liquid chromatography techniques.

It is interesting to know that trichomes of P.H. were found to contain maximum levels of parthenin when compared to flowers and leaves. It assumes a greater significance in the light of observation that trichomes along with pollens are wind-borne to a great extent in the atmosphere as borne out by acro-biological studies conducted at Bangalore. It is speculated that these allergens could be responsible for allergic rhinitis.

The reported increase in naso-bronchial allergy in Bangalore which is heavily infested with P.H. has been partly attributed to parthenium pollens in the biosphere. Furthermore, parthenium pollen allergen specific IgE antibodies have been detected by radioallergo absorbent test (RAST) in the sera of some patients suffering from 'rhinitis' which correlated with intracutaneous tests. Further observation and confirmation is needed regarding the role of parthenin in Type I hypersensitivity reactions. It is difficult sometimes to distinguish parthenium dermatitis from photo dermatitis. Further, phototoxic components like thiopentene chemicals which have phototoxic activity for human skin have been identified in chrysanthemum family. The pathogenetic role of such chemicals has not yet been clearly elucidated. There are certain lacunae in our knowledge of the pathogenesis of parthenium dermatitis. Why are women and children rarely affected? It is difficult to explain the sparing of

women and children on immunological basis. On the analogy that hyposensitization to Ambrosia, a relative of parthenium has been achieved, it will be of interest to see whether purified parthenin can be used in a similar way to bring about hyposensitization of parthenium dermatitis patients. Cases of spontaneous hyposensitization during the natural history of the disease, however rare they may be, is an added hopeful factor. There is irrefutable evidence to show that parthenium is hazardous even to domestic cattle and livestock which graze in fields heavily infested with P.H. The potentiality of toxic principles getting into the milk and sensitizing the general population is not far fetched and should be borne in mind.

Besides being a pest to the human beings and live stocks, parthenium poses special problems to agriculture, the plant encroaching the cultivated fields and affecting the crops. The allelopathic components present in different parts of the plant are claimed to be the inhibiting factor affecting the crops.

In view of the hazardous nature of parthenium to human beings, livestock and agriculture, suitable measures to eradicate the weed has to be worked out. No clear cut methods for the control has emerged so far. Three types of control measures have been considered: Manual weeding, chemical control and biological control. Each has its own advantages and limitations. Experts in this field have to trash out the problem. Dermatologists have an important role to play in this problem.

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