CHAPTER - VI

SUMMARY & HIGHLIGHTS

SUMMARY AND HIGHLIGHTS OF THE PRESENT WORK

Summary

The thesis incorporates chemical data of 67 plants belonging to 29 genera of the family Euphorbiaceae. The chemical markers studied are flavonoids (flavones, flavonols & glyco-flavones), phenolic acids alkaloids, iridoids, saponins, tannins and proanthocyanins.

There have been random reports on the chemistry of the Euphorbiaceae. Most of the previous works have been on the chemistry of latex and a few on leaf phenolics. No attempt has been made to date to correlate the chemical data to find out the evolutionary trends within the family and also the affinities w with other families. In the present work majority of the plants have been studied for the first time for their leaf phenolics and other chemical constituents. A total number of 13 flavonoid compounds have been detected in the present investigation. 15 phenolic acids and a number of new sources of alkaloids, saponins have also been detected. The family on a whole shows dominance of primitive characters. Using characters selected from morphology, anatomy and chemistry the 29 genera belonging to the family have been subjected to a cladistic treatment.

When a comparison of the cladogram is made with that of the existing classifications, it shows greatest similarity

with the system of Bentham and Hooker. Tribe Crotoneae of Bentham and Hooker is distributed in 3 different groups of the cladistic system. Tribe Euphorbieae and phyllantheae of Bentham and Hooker forms a single group in the cladistic arrangement. Euphorbia and Pedilanthus have the same level of advancement but not a recent common ancestry. The similarities between these genera appear to be a case of convergence in Evolution. Genera Macaranga, and Acalypha show the highest level of advancement (score 9) followed by Mallotus, Sebastiania, Drypetes and Exeocearia (score-8).

Highlights

1. 67 plants belonging to 29 genera have been investigated for various chemical markers out of which 55 are investigated for the first time.

2. A total number of 13 flavonoid compounds, 15 phenolic acids and 11 new sources of alkaloids have been located.

3. The data have been grouped generawise and a comparison of the natural product distribution have been made between various existing classifications.

4. The separation of Chamaesyce and Euphorbia is not supported on chemical grounds.

5. The pseudo cyclic evolution proposed in the family is not supported.

6. A sectional and subsectional classification for genus Euphorbia has been supported on chemical grounds.

7. A sectional and subsectional classification for genus _Jatropha_ ha has been supported on the basis of chemical findings.

8. The genera belonging to the family Euphorbiaceae have been subjected to a cladistic analysis using characters selected from morphology, anatomy and chemistry.

9. The cladogram shows greatest similarity with Bentham and Hooker's system of classification.

10. _Euphorbia_ and _Pedilanthus_ show the same level of advancement which probably is due to convergence in evolution.