

Chapter 5

Conclusions

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In the present research project entitled “In-Depth Studies on some of the Floristic Components of Baroda and Panchmahal Districts with Reference to Bioprospecting and Speciation,” detailed morphological studies on 400 plants have been conducted. These plants were dissected carefully and identified using the standard floras and ‘true to life’ line drawings of all these plants were prepared. The variations in morphological characters of the dissected specimens from those described in floras, if any, were observed and noted. Detailed studies on their micromorphological characters like stomatal types and trichome characters were done and their sketches were made. In addition, bioprospecting of 11 plants mostly related to certain useful plants was carried out to find out substitute or alternate sources of important phytochemicals. The highlights of the Ph.D. programme are the following:

1. **Line drawings of 400 plants** showing distinct and characteristic features of each plant will help any student of taxonomy to understand the plant correctly and group them. Most of these illustrations are made for the first time.
2. Twenty-nine plants showed **variations** in some or the other characters from the standard descriptions. **These variations may lead to speciation** and therefore, they are recorded for further studies.
3. In a few plant specimens **certain additional characters** which were not reported earlier also were observed. They form additional data in the morphological descriptions of these plants.
4. **An elaborate and extensive database on the micromorphological characters of 400 taxa** are made available for the first time. This data will be of immense importance in identifying almost all these plants even in the vegetative states. In case, of

economically useful plants such as drug plants or narcotics, these characters will be of great significance in identifying the raw material or adulteration.

5. **The micromorphological characters especially those of trichomes are found to be of great use in classifying and identifying taxa at various levels of hierarchy** or in quality control analysis of useful plants as evidenced by the three papers published;

1) Micromorphological characters as biomarkers for some of the medicinal plants of Gujarat.: In *Herbal Technology: Recent Trends and Progress* (M. Daniel Ed.) Scientific Publishers, Jodhpur (2007), 77- 84

2) Foliar trichomes of some members of the family Acanthaceae and their taxonomic unity (*Int. J. Pharma and bio Sci.* 2 (5), 2011, 231-235.) and

3) Foliar micromorphological studies on some members of the family Fabaceae (*Int. J. Pharma and Bio. Sci.* 2 (4), 2011, 603-611).

6. **Eleven new sources of economically important products** are located during the course of bioprospecting, they are 1) new sources of volatile oils (*Stemodia serrata*, *Stemodia viscosa* and *Ageratum houstonianum*- new sources of eugenol in the first two plants), 2) new sources of bioflavonoids (*Alternanthera bettzickiana*, *A. sessilis*, *Ageratum conyzoides*, *Riedleia corchorifolia* and *Hygrophila schulli*), 3) mucilage (*Bombax*), 4) quinones- in flowers of *Aloe* and 5) fixed oils from (*Aloe* seeds and *Balanites aegyptiaca*).