

Preface

Taxonomy is considered as a monotonous subject. I never liked this subject when I was a student. Somehow I landed up doing researches in chemotaxonomy since 1972. To gather support for my chemotaxonomic conclusions, I used to gather evidences from other disciplines as well. During those years I began to like the subject. My knowledge on taxonomy was put to test when I was asked to teach the same to undergraduate and then to graduate students. To make the subject interesting, I used to relate the taxonomic groups in evolutionary sequences. Since in India we followed the system proposed by Bentham and Hooker, using the phylogenetic dicta of Hutchinson, it was easy to put Thalamiflorae, Disciflorae and Calyciflorae in an evolutionary sequence. Similarly, I could relate the Heteromerae with Inferae and Bicarpetallatae. Evidently I felt that the gamopetalous plants are always advanced over the polypetalous ones.

My evolutionary concepts on monochlamydeous plants were very ambiguous in the beginning. I was at pains to explain the evolution of Salicales from Violales, Euphorbiales from Celastrales, and Batales from Theales. Neither I, nor my students understood the same. Even the merger of some gamopetalous families with polypetalous groups in Dilleniidae was unpalatable to many.

When we consider "struggle for existence" and subsequent "survival of fittest" as the fundamental criteria of evolution, the evolutionary significance of a character is judged by the contribution of that character to the success of plant. In such a frame, a character which gives an edge to the bearer over the neighbouring plants can be considered advanced. If we analyze all characters like this, unknowingly we will be surprised at the "innate intelligence" of the organism (here plants) which developed those characters (we may brush aside this thought by saying jargons like "there would have been millions of mutations occurring and those changes which were helpful to the plants were retained!"). I was fascinated by the ways Angiosperms switched over to entomophily by bedecking the flower like a bride to attract the insects and sending messages to insects through pheromones. It was the flowers and fruits which caused the "abominable mystery"

to happen in which Angiosperms which appeared by about 130 million years ago, achieved dominance within a span of 40 million years. Among all the factors, the contribution of petal (corolla) to this success was the major one. This fact made me think on the evolutionary strategies of the apetalous plants which also originated at the same time as the Magnolids. Therefore, I am compelled to think that the apetalous taxa are another line of evolution parallel with the petaliferous taxa.

Once the apetalous taxa were separated, the classification appeared as an exercise in evolution. And all my thoughts and reasoning are summarized in Chapter 5 where I proposed a modified version of classification proposed by Bentham and Hooker, of course, a phylogenetic one.

I have followed Cronquist in the general treatment of families in each order. The major families of an order (including type family) are treated first, followed by the minor families. For the major/important families, a detailed morphological description is given followed by a list of exceptional genera. The distinguishing features of that family are given next. A list of useful plants is given at the end of the discussion on each family. Since, there are many texts available giving details of the common useful plants, here, emphasis is given to medicinal plants, biopesticides, natural dyes and/or biofuel.

I am sure that many taxonomists will fight some of these concepts tooth and nail. But I have presented here a **logical and student-friendly classification which is easy for the student to understand and much easier for the teacher to teach**. I happened to give lectures on these aspects to many learned audiences and all of my listeners agreed that this approach will make the subject taxonomy a thrilling one and not "tax-on-me". A few of them requested me to pen down my thoughts and here I am.

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