

*A revision of Caprifoliaceae of Japan with reference to allied plants in other districts and to Adoxaceae* by Hiroshi Hara. 1983. iv frontis. + 336 pp. + 55 pls. Tokyo: Academia Scientific Book Inc. [Ginkgoana, no. 5] ¥12000; \$60.00 (paper).

The Caprifoliaceae of Japan have received more attention and are probably better known than those of any other country. In fact, much of our understanding of the family stems directly from studies by Japanese botanists, especially Nakai (1921), Fukuoka (1972), and now Professor Hiroshi Hara, of the University of Tokyo. Professor Hara, who has been a student of Caprifoliaceae for some 50 years, has provided us with an extremely useful taxonomy of the family in Japan, as well as a valuable synopsis of all of Caprifoliaceae and the enigmatic Adoxaceae. His book will be indispensable for anyone seriously interested in these groups.

Most botanists will be familiar with Professor Hara's broad circumscription of Caprifoliaceae, which includes 14 genera and some 350–450 species. Of these, Hara considers that 8 genera and 55 species are native to Japan. He divides the family into three subfamilies: *Viburnum* and *Sambucus* are placed in monogeneric subfamilies, and the remaining 12 genera are placed in the four tribes usually recognized in Caprifolioideae. A very recent phenetic analysis (Hsu 1983) suggests that the genera *Symphoricarpos* and *Triosteum* may be out of place in the standard tribal classification.

Adoxaceae, long considered monotypic, has recently acquired two additional members, *Adoxa omeiensis* (Hara 1981; Wu 1981) and *Sinadoxa corydalifolia* (Wu et al. 1981). These species, both from China, may have an important bearing on the placement of the family. Professor Hara provides a good summary of what is now known about them. He believes that Adoxaceae are related to Caprifoliaceae but advances (without discussion) the novel idea that Adoxaceae "may be derived from the same ancestor as that of *Triplostegia* of Dipsacaceae and *Nardostachys* of Valerianaceae." Research unavailable to Hara suggests, however, that neither this view nor the orthodox classification of Caprifoliaceae is supported by the evidence. Indeed, it now appears that Caprifoliaceae (in any past or present sense) may not be monophyletic and that *Viburnum*, *Sambucus*, and *Adoxa* are probably a clade within which *Sambucus* and *Adoxa* are sister groups (Donoghue 1983b).

Professor Hara's book contains a wealth of information about the organisms. His descriptions are detailed and clear and are usually accompanied by very helpful discussions of variation and ecology. Hara is obviously intimately acquainted with these plants, and I would have appreciated even more discussion. I am tantalized, for example, by his observation that

*Viburnum erubescens* and *V. suspensum* have "the same smelling of sesame when bruised" as *V. sieboldii*. Comments of this kind may often be edited out, but they are the basis for future research and, perhaps, important discoveries.

Some botanists who prefer simply to describe the range of variation within species may not agree with Hara's recognition of numerous infraspecific taxa, many of which are described as new. Often all of the allowed infraspecific ranks are used but there is no discussion of the concepts involved. In *Sambucus racemosa* in Japan, for example, he recognizes two subspecies, two varieties, and 13 forms. Considering that these differ in fruit color, leaf lobing, and pubescence (characters that often vary within populations) and that they are sometimes based on only one or two collections, I am myself doubtful of the utility of formally recognizing such variants. Hybrids, including a new form and even a new nothomorph of a hybrid *Weigela*, are also discussed and named.

Professor Hara has done an outstanding job of straightening out nomenclatural problems at all levels, a task that is especially difficult in a group containing so many horticulturally important plants. His synonymies are exhaustive and will be extremely useful for anyone doing taxonomic work in these groups anywhere in the world. He provides, for example, a complete treatment of the nomenclature of each genus and its subdivisions, and it is now clear that some of us (myself included) have been less than discriminating in applying names to sections and subsections.

In the course of revising classifications within genera Professor Hara describes a number of new subsections, most of these in *Viburnum*. Although I agree that the currently recognized sections should be carefully examined and, in some cases, split up, it may be premature to do so formally because we still understand so little about phylogenetic relationships within these groups. Consider, for instance, that only two components of Professor Hara's intuitively derived diagram showing interrelationships of *Viburnum* sections are congruent with those that appear in cladograms that I have generated (Donoghue 1983a). In fact, the latter indicate that some of the sections themselves are not monophyletic.

Very detailed information is provided on the geographic distribution of each taxon, and numerous specimens document the range maps. Several different base maps were used, and, unfortunately, some of these have too much background detail and/or are reduced so much that they may be unclear. Professor Hara also discusses the ranges of related plants outside of Japan, thus providing an overview of the geography of the family worldwide.

There are good, usable keys to taxa at most levels, but keys to infraspecific taxa would have been a

worthwhile addition. A few color and many black and white photographs are assembled into plates, and simple line drawings accompany many descriptions. The pictures at the end of the book are generally helpful, but their use is difficult because they are separated from the captions by 19 pages of indices to new names, all Latin names, and Japanese names.

The illustrations include a number of scanning electron micrographs of trichomes and pollen grains. These are valuable, even though they are seldom referred to in the text. Although the pollen of Caprifoliaceae is now very well known, the taxonomic implications of the pollen characters still are not widely appreciated. This in spite of the very thorough study by Böhnke-Gütlein and Weberling (1981), one of the few important references that does not appear in Hara's otherwise comprehensive "selected literature."

There are spelling errors and the English is occasionally awkward, but these are minor items that never create ambiguity in meaning. Considering that the price of the book is high and that the quality of the production is not uniformly so, I am reluctant to recommend it to botanists who are only casually interested in these groups or in Japan, but it definitely should be purchased by university libraries and research institutions. Students of any of the genera treated here will want to see the book immediately. I will consult it regularly, and, thanks to Professor Hara's careful and diligent research, I know that my own work will be made much easier and better.

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