Reclassifications of the Genus Chrysanthemum L.

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Additional index words. Chrysanthemum morifolium, Dendrantha minutesa, Dendrantha morifolia, Dendrantha grandiflora, nomenclature

Reclassifications of the genus Chrysanthemum (10, 11, 13–15, 18, 22), accepted by most botanists and taxonomists for almost a decade, have not been brought to the attention of horticulturists. Of special concern is the correct scientific name of the garden and greenhouse chrysanthemums, currently integral components of national and international floricultural trade.

The large, heterogeneous genus Chrysanthemum L. (Asteraceae, Tribe: Anthemideae, Subtribe: Chrysantheminae) has been reclassified many times since its formation (14). The concept of a Chrysanthemum complex probably arose from Linnaeus (16, 17), who classified species into this genus that today are found in genera including Argyranthemum, Chrysanthemum L., Dendrantha D. grandiflora, and Tanacetum L. (7, 8, 10, 15, 18). Initial reclassifications of the Chrysantheminae (2, 12) or “splitting” the Chrysanthemum meant either “lumping” many genera into a single genus or “splitting” the complex into a multiplicity of genera (19). Misclassification of species into Chrysanthemum has led to confusion among botanists, taxonomists, and horticulturists (9).

Reclassification of the Chrysantheminae by botanists in this century has been based on cytology, cypsela anatomy and morphology, plant habit, and phytochemistry (11). While most European and Oriental taxonomists accept this reclassification, not all conservative taxonomists have agreed with “splitting” the old genus into separate genera.

Briquet and Caviller (5) recognized primarily three genera: Chrysanthemum L., Leucanthemum Miller, and Tanacetum L. Harling (6) produced extensive embryological data on the Chrysantheminae that supported Briquet and Caviller’s classifications. More recent studies by Borgen (3), Humphries (13, 14), and Nordenstam (18) confirmed Harling’s observations. Cytological information has been used, for the most part, for studying species rather than generic relationships, since all members of the complex have a basis number $x = 9$ (20, 21, 23).

Currently, classification based on embryo sac development, cypsela anatomy and morphology, plant habit, and phytochemical properties divides the Chrysanthemum complex into five major genera: Argyranthemum Webb ex Schultz Bip., Chrysanthemum L. sensu stricto, Dendrantha Des Moul., Leucanthemum Miller, and Tanacetum L. (13). A number of independent “satellite” genera have been formed to include species that do not fit into the major genera. These genera include: Balsamita Miller, Coleostephus Cass., Glossopappus, Heterantherum, Hymenostemma Willk., Leucanthemella Tzvelev., Leucanthemopsis, Nipponanthemum, Phalacrocarpus, Pinardia, and Pro­longa (10, 11, 14). While the evolutionary relationships among the genera have not been investigated thoroughly to date, Heywood (8, 9) has proposed a partial scheme for several genera.

The genus Chrysanthemum, in the strictest sense, contains only three species, all of which are annuals: C. coccineum, C. coronarium, and C. segetum. Pyrethrum, perhaps the second most economically important species, is now classified as Tanacetum cinerariifolium. Most of the horticulturally important species are contained in the new genus Dendrantha, including the 7000 or more cultivars of greenhouse and garden chrysanthemums now classified as Dendrantha grandiflora Tzvelev. (D. morifolia Ramat.) (Chrysanthemum morifolium Ramat.) (11, 15, 22). Kitamura (15) indicated that the specific epithet of (Dendrantha morifolia) was incorrect. The original classification in 1792 was D. grandiflora. Since the International Code of Nomenclature of Cultivated Plants deems the original published designation as the correct one (1, 4), the specific epithet of D. grandiflora holds precedence over (D. morifolia).

The effect that this name change will have on the industry can only be speculated at this date, especially since this species has been referred to as chrysanthemum or “mum” for hundreds of years. Undoubtedly the common name will remain, but the scientific community should take note of the name change from (Chrysanthemum morifolium) to Dendrantha grandiflora.

Literature Cited


