

Preface

The Chenopodiaceae (chenopods) are a group of plants living in stony desert, sand dune, and semi-desert habitats, and in sandy, saline, and alkaline areas. They are widely distributed in all continents except Antarctica. The family was an early originating taxon among angiosperms. There is data to show it had already appeared and was reproducing, breeding, and evolving in the Cretaceous (distant from the present, ca. 60 million years ago). Later, during the vast course of history, it reacted by altering its morphological surface patterns or interior physiological functions in response to changes of geology and climate, especially in indomitable struggles with drought in the environment, and it achieved evolutionary development and became strengthened in adaptation. At the present it has expanded into a large group of more than 120 genera and ca. 1500 species.

The authors of this book, in accordance with principles of evolutionism formulated over a long period of observation, have studied every characteristic and property from the point of view of morphology, such as trichome type, stem and leaf shape and anatomical structure, presence or absence of bract and bractlets, floral sex, perianth, anther appendage, floral disc, rudimental stamens, fruit type, form of seed and perisperm, pattern of embryo and radical orientation, morphology of pollen grains, etc. A large number of images (more than 150 plates) are presented as evidence of developmental processes and the evolutionary trends of these characteristics and properties. On this basis, integrating present distribution patterns, the authors have identified, merged and combined some duplicate genera and species, and in accordance with relationships, have arranged a new systematic organization for the family on morphological terms, containing 7 subfamilies, 17 tribes, and ca. 120 genera for the family. Meanwhile, the authors have studied all published reports on the DNA and of this family in recent years, and approved and accepted many reasonable parts, but have also found some very difficult to be accepted.

Due to chenopod plants having properties of every kind adapting them to droughty circumstances, and since most species are food sources for livestock and wildlife, plants of this family play, and will be playing in the future, important roles in restoration and reconstruction of desert vegetation.

This book may provide references for the workers who are engaged in systematics, molecular biology, and ecological environment reconstruction.

Owing to the intellectual restrictions of the authors, it is hard to avoid that there may be oversights and omissions, and so others are welcome to make comments or criticisms.

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