

GENETICS AND BREEDING OF ORNAMENTAL PLANTS

Genetics and Breeding of Ornamental Plants. Ivan Iliev. SEJANI, Sofia 2001, 336 pp. [In Bulgarian].

Comprehensive review combining general principles of genetics with their manifestation in forest tree species, preferably in those with decorative value. The first part of the book deals with genetics in general covering the classical aspects of inheritance. The biochemistry of inheritance together with Mendelian and cytoplasmic inheritance introducing this part are followed by the chapters which refer to the gene interaction, genetics of sex determination, population genetics and genetic engineering of decorative trees, respectively. Along with traditional examples illustrating mechanisms of inheritance at the levels ranging between gene and populations, the numerous examples of the kind are also provided using forest trees. In particular it concerns the karyotype structure and organization with schematic and cytological illustrations of the chromosome number and morphology in conifers and in birch. The same is true of the chapters concerning genetic and cytological mechanisms of vegetative and generative reproduction where schematically depicted course of sporogenesis is completed by the microphotographic illustrations of the processes as revealed *in situ*. The absence of such microphotographs in the part referring to fertilization of plants may be looked upon as a shortcoming which prevented this chapter to be more complex.

A close association of the first part of the book with forest trees is most obvious in the chapter dealing with biological variability. The parallel variation exhibited as a part of genetically governed homologous variability is amply illustrated on the example of commonly de-

scribed decorative cultivars of forest tree species. Altogether 90 coloured photos inserted into this chapter illustrate various forms of trees differing in such traits as colour of leaves and flowers, leaf morphology, shape of crowns and habitus.

In the light of the results achieved during genetic transformation of plants the chapter on genetic engineering may be of special interest involving the names of the forest tree species which have been transformed successfully.

The second part of the book is devoted to selection with a total number of ten chapters involved. Following the first two chapters describing basic principles of natural and artificial selection the processes of generative hybridization and mutagenesis are treated with special reference to forest trees. Sterility of the interspecific hybrids is discussed in this connection as well together with the methods of its overcoming. The remaining chapters deal with genetic and selection principles of introduction of decorative trees as well as with selection criteria used in classification of forest trees and their stands. A dictionary defining 407 genetic terms and/or phenomena in total together with the list of 440 references represent concluding parts of the book.

The book is believed to be of help for the students and scientists working in the fields of forest genetics, landscape architecture and ecology.

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