

MSc II SEM (BOTANY)

History and Development of Plant Taxonomy:

The early history of development of botanical science is nothing but a history of development of plant taxonomy. The herbalists and agriculturists of ancient times gathered some knowledge about plants which was passed on from generation to generation.

Theophrastus (372-287 BC), the Greek philosopher-scientist, placed this knowledge of plants on a scientific footing. In his "Enquiry into Plants" he dealt with the plants at large and attempted to arrange the plants in several groups. He is, therefore, called the "**Father of Botany**".

Pliny compiled a monumental work entitled "Historia Naturalis" where he incorporated all information about plants gathered up to that time and added much to the same collected by himself from his travels far and wide. Dioscorides was a contemporary of Pliny and like him travelled a lot and gathered information about medicinal plants.

He compiled his famous book "Materia Medica" where he described about six hundred species of plants mentioning their local name and giving their medicinal properties. Along with descriptions he gave sketches which increased the value of the book very much and gained much popularity among the herbalists and plant-lovers in Europe.

For a long period after this there was no contribution in the study of plants worth mentioning till Albert Magnus in the 13th century wrote his "De Vegetabilis" where the difference in the stem structure of Di-cotyledons and Monocotyledons was shown and the two groups were given the terms Tunicate and Corticate.

Printed books on plants were available towards the close of the 15th century and a few German herbalists carried their enquiries about plants still farther making the study of Botany quite popular.

Foremost among them was Otto Brunfels who published his book "Herbarium vivae Eiconis" in three volumes (1530-1536) which was profusely illustrated with good figures. Jerome Bock (1498-1554), another German herbalist, published his "Nue Kreuterbuch" which contained accurate descriptions of about 600 species of flowering plants.

In this book the author tried to trace the natural relationship of plants while classifying them into 3 major groups, viz., herbs, shrubs, and trees and also noted the original distribution of each species.

Andrea Caesalpino (1519-1603) also classified the plants on the character of their habit, viz., trees, shrubs, and herbs but also took into account the characters of ovary, fruit, and seed. He became famous for his book "De plants" in 16 volumes, the first of which contained his principles of classification.

Leonard Fuchs (1501-1566), Valerius Cordus (1515-1544), Mattias de L'Obel (1538-1616), John Gerard (1545-1612), and Charles L'Ecluse (1526-1909) were others who also advanced the cause of botanical science by their observations and contributions. Then the Bauhin brothers came to the field.

The elder brother Jean (Johna) Bauhin (1541-1631) wrote a book entitled "Historia plantarum universalis" which was published after his death. Gaspard (Casper) Bauhin, the younger brother (1560-1624), published 3 botanical treatises the third one of which, viz., "Pinax theatri Botanic" became very popular. Both the Bauhins made use of the habit-character of plants in classifying them.

Gaspard Bauhin had formulated the idea of a genus and in many cases gave binary nomenclature to his plants. He also collected all names of plants published in different botanical works till his time and referred them as synonyms along with names he used as correct ones.

John Ray, an English naturalist (1628-1705), set himself seriously to the study of plants and gave much thought in proposing a system of classification of plants. He was the first to recognise 2 major taxa of flowering plants, viz., Dicotyledons and Monocotyledons. He also tried to group the plants into several families which he called "classes".

He divided the plant kingdom first into 2 groups, viz., Herbae and Arbores. The Herbae were then divided into Imperfectae and Perfectae, the first of which included the Cryptogams and the second group, i.e., the Arbores included most of the flowering plants.

The Perfectae were subdivided into Dicotyledonae and Monocotyledonae and under Dicotyledonae he placed 25 of his classes and 4 under Monocotyledonae. His system of classification came out in his "Historia plantarum" of which several editions were published and he revised and improved his system in the later editions.

Joseph Pitton de Tournefort was a contemporary of John Ray and tried to work out a system of classification of flowering plants. He too divided the plant kingdom first into 2 groups as trees and herbs and used the character of inflorescence and flower for subdividing the latter group.

He was the first to give a clear concept of a genus although Gaspard Bauhin mentioned it in his works. Tournefort's work proved very helpful in identifying the plants up to the species.

Then came Carolus Linnaeus (1707-1778), a Swedish naturalist (also called Carl von Linne), who gave a new impetus to the study of plants. He was professor of medicine and botany in the Upsala University.

He himself was an arduous collector of plants and made arrangement of collecting plant-specimens from different parts of the world by sending his students to countries far away and through missionary- men and administrators.

The discovery of numerous plants from all over the world led him to think about bringing an order into the existing chaos and set himself in grouping and classifying all the plants known till his time. He proposed a system of classification which was published in his "Systema Naturae" (1735).

In this system he used the character of stamens, i.e., the number and nature of stamens, to distinguish the 20 classes in which he divided the plant kingdom. He also used the number and nature of carpels to distinguish the orders, i.e., subdivisions of his classes.

In addition to presenting an excellent system of classification of plants Linnaeus published many botanical works of monographic and floristic nature and also books embodying his ideas of nomenclature of plants.

The "Species plantarum" the first edition of which came out in 1753 contained an enumeration of all plants known to him till that date, accompanied by brief description of each species with distribution and previous reference. In this work he consistently used binary nomenclature for every species with a generic name followed by a specific epithet.

The modern taxonomists have agreed to consider the year 1753 as the starting point of nomenclature of Phanerogams, Pteridophyta, and Sphagnum. In his "Philosophia Botanica" he laid down some principles which later formed the basis of the International Code of Botanical Nomenclature.

Owing to the efforts of Linnaeus the study of Botanical science entered the modern age and Linnaeus is rightly called the "**Father of Modern Botany**".