What is Plant Taxonomy? – Plant taxonomy or systematic botany is a science that deals with IDENTIFICATION, DESCRIPTION, NOMENCLATURE (naming) of plants, and their CLASSIFICATION into different groups according to their resemblances and differences, mainly in their morphological characteristics.

Meaning of the key words in the definition

IDENTIFICATION - This is what one does when keying out an unknown, when determining the kind of plant by comparing it with a plant of known identity; or with a description of such a plant. Identification may be accomplished by the aid of books or papers on the subject (such as manuals, florals, monographs or revisions) or by direct comparision with plants of known identity (such as living plants in collection or pressed and dried herbarium specimens). Identification is quite different from nomenclature; it has nothing to do with the correct name of the plant or determining that name. Technology is presently available for the use of computers to aid in identification.

DESCRIPTION- This is the listing of features or characteristics of a plant. Each plant name is accompanied by a description.

NOMENCLATURE- This is a function of taxonomy which deals with the correct naming of plant that has been identified and classified. Taxonomy tells how to go about the determination of what name is correct whether a particular name is only a synonym or whether it has no standing at all. Botanical nomenclature is concerned with the Latin or scientific names of plants.

CLASSIFICATION- This is the placing of a plant or group of plants in categories according to a particular system and in conformity with a nomenclatural system e.g. classification into trees, shrubs, or herbs.

There is no agreement or etymological basis for the distinction between **systematics** and **taxonomy,**therefore these two terms could be used interchangeably.

THE OBJECTIVES OF TAXONOMY

Plant taxonomy has **four**objectives:

1. To inventory the world's flora. The term flora refers either to the plants growing in a particular geographic area or to a systematic listing or description of those plants.
2. To provide a method for identification and communication.
3. To produce a coherent and universal system of classification.
4. To demonstrate the evolutionary implications of plant diversity.

IMPORTANCE OF PLANT TAXONOMY

1. Plant taxonomy is the basis for co-ordinating in all branches of botany as well as forestry which involve identity of species .e.g. morphology, physiology etc are comparable only

2. after identification, nomenclature and classification.
3. It provides a classification which as far as possible expresses the natural relationship of the plants.
4. It provides a convenient method of identification and communication.
5. It is a means to detecting evolution at work.
6. It provides an accounting of the kinds growing on the earth. It demonstrates the great diversity of plants in nature and their relationship.
7. It is an aid to evaluating the raw materials requisite to allied activities such as forestry, medicinal work, horticultural pursuits and biological industries.

CLASSIFICATION

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AIM OF CLASSIFICATION

1. In addition to expressing relationships based upon common features, classification serves as a filing and information retrieval system.
2. The ultimate object of classification is to arrange plants in such a way as to give us an idea about their phylogenetic relationships i.e. the sequence of their origin and evolution from simpler, earlier and more primitive types to more complex; more recent and more advanced types in different periods of the earth.

UNITS OF CLASSIFICATION

A taxon (pl. taxa) is a convenient term which is applied to any taxonomic group at any rank . e.g. species, genus or family.

A unit of classification is a coherent group of like individuals called SPECIES. Following the development of natural system of classification a number of natural units evolved. These include the Species, Genus, Family, Order, Class, Variation, Sub-class, Division of sub-class etc.

SPECIES –is the basic unit of classification. A species is a group of individuals (plants or animals) having a very close resemblance with one another structurally and functionally.

GENUS – One or several related species make up a genus (pl. Genera) e.g. *Piliostigma reticulum, Piliostigmathonningii, Miliciaexcelsa, Khayasenegalensis, Adansoniadigitata,* etc. The first names are the generic names while the second names are the species names or the specific epithet. A genus is often recognizable by one or more characters of gross morphology. In delimiting a genus, two important requirements that should be taken into consideration are:

1. That of showing natural affinities

2. That of aiding correct identification.

FAMILY – is the largest category commonly encountered in routine taxonomic work. It is usually a readily recognized taxon composed of one or more genera with obvious relationships e.g. Caesalpinaceae family comprises many genera e.g. *Piliostigma, Bauhinia* etc. Genera of a Family show general structural resemblances to one another mainly in their floral organs.

ORDERS – are aggregated into successively higher groups on the bases of a few fundamental morphological characters common to the members of each category. This higher groups include the Class, Sub-class, Division, Sub-division and finally the Kingdom.

DIAGRAM

Names of genera are nouns from any source whatsoever. It may be masculine, feminine or neutral in gender; and in Latin or Latinized derivatives from Greek. A species name is composed of two words, - generic name, and the specific epithet known as binary name or binomial. Sub-units occur below the species, these are referred to as intraspecific units of classification. These are sub-species (S sp) varietas (var), the forma (*f*), the clone (cl).

A **sub-species** may be defined as one whose evolutionary development has not progressed to the extent of its being markedly and consistently distinct from its parent species.

A **varietas**is a unit of subordinate to sub-species.

A **forma** is a minor variant (one whose minor variation is perhaps often caused by a single gene difference or distinguish by a single character) of a speciesw or higher intraspecific unit.

Clone is a vegetative propagule.