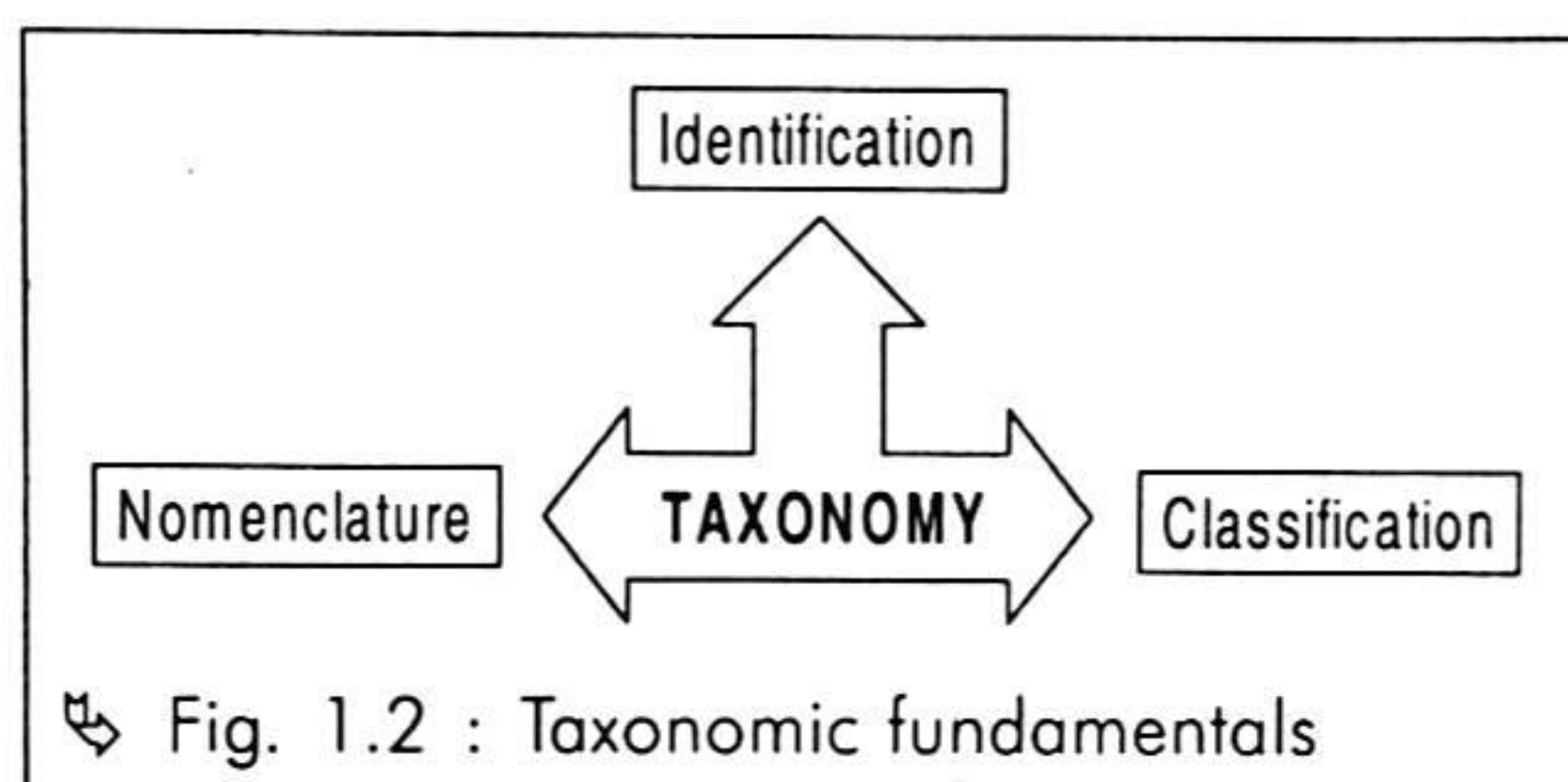


1.2 Different Aspects of Taxonomy..... ▶

The three functions of taxonomy include, identification, nomenclature and classification (Fig.1.2). Its main aim is to provide a convenient method of identification and communication about a taxa and provide a classification which is based on natural affinities of plants as far as possible. The word 'taxon' (taxa) was first used by a German Biologist Adolf Meyer in 1926 for animal groups. It was later proposed for the plant system in 1948 by Herman J. Lam. It is a taxonomic group of any rank, e.g. family, genus, species, subspecies, etc.



(a) Identification

Identification of a taxon is a prerequisite for any study based on it. It is the determination of a taxon based on overall similarities and differences with other taxa. Identification is generally done by comparing representative specimen of a given taxon with the help of key descriptions, illustrations, etc. Sometimes, the specimen may not agree or compare with the existing predetermined specimen. In such a case it is taken to be new to science. **Identification is thus assignment of additional unidentified plants to a correct rank once a classification has been established. It is the determination of a name for a specimen. This also implies its rank.**

(b) Nomenclature

Once the taxon has been identified, it becomes necessary to give it a scientific name. **Thus, nomenclature is the naming of a taxon correctly. It is a precise and universal system of rules used by all botanists of the world for naming newly discovered plants.** Often constant study of plants results in differences of opinion concerning past work. This often results in splitting, uniting, changing ranks etc., all of which may affect the plants name. Thus, universal rules are needed to determine the correct name for a plant and the rules for naming the plants are governed by the International Code of Botanical Nomenclature (ICBN). A new name is given to a new taxon.

(c) Classification

Keeping in view, the enormously high number of plant species, it is impossible for any one to study all plants individually. To overcome this problem, the plants can be placed into small or large groups based on their similarities and differences, and then arranged in a sequential manner into categories according to their levels, and each category given a name following the rules of nomenclature. For example, similar plants may be grouped under a "species", similar species under a "genus", and so on. **Classification is thus, the arrangement of groups of plants with particular characteristics by rank or position according to certain criteria, and placing them within the taxonomic hierarchy. It includes the determination of position or rank for new taxa as well as old taxa, which have been remodeled, divided, united, transferred or altered in rank.**

There are basically three kinds of classification: artificial, natural and phylogenetic. These however, are not mutually exclusive but often overlap in practice.

1. **Artificial** : It is the classification that is based on one or a few easily observable characters such as habit, colour, form, etc., often irrespective of their affinity.
2. **Natural** : It is the classification that is based on overall similarity, mostly on gross morphology.
3. **Phylogenetic** : It is the classification based on common evolutionary descent.

(d) Systematics

It is the part of classification that involves the arrangement of plants into related groups. It is the scientific study of the kinds and diversity of plants and the relationships among them if any, and includes not only the traditional activities of taxonomy but also the investigation of such things as evolution, speciation, natural variation, reproductive biology, and a variety of biological phenomena. According to Radford (1986) **systematics is the study of phenetic, genetic and phylogenetic relationship among taxa.**