

TAXONOMIC EVIDENCES FROM PALYNOLOGY

Study of pollen character has been proved to be very useful in solving taxonomic disputes. Palynological evidences appeared very effective in plant taxonomy and Phylogeny since the pollen grains possess distinctly unique characters which are genetically controlled. Palynologically plant families can be segregated into two groups –

1. Stenopalynous – where taxa of the family display more or less same type of pollen grains. e.g., Poaceae, Chenopodiaceae, Amaranthaceae etc.
2. Eurypalynous – where the taxa of the family shows obvious difference in pollen types. e.g., Asteraceae, Rubiaceae, Acanthaceae, Verbenaceae, Solanaceae, Convolvulaceae, Fabaceae etc.

Several pollen features are useful in taxonomic delimitation like – Pollen grain shape, aggregation, grain symmetry, wall architecture, sculpturing; pollen aperture its type, number, shape, position, structure etc.

On the basis of Palynological character Fumariaceae is separated from Papavaraceae and Nelumbonaceae from Nymphaeaceae. Monocots are considered to be closely related to Magnolian stock on the basis of monocolpate pollen grain. The Magnolian dicots considered to be ancient palynologically as compared to Ranalian dicot where new apertural patterns are present in place of monocolpate grains. Malvaceae and Bombacaceae are separated on the basis of exine characters, Malvaceae shows spinous exine and Bombacaceae shows reticulate exine in pollen grains.

The family Berberidaceae consists of 12 genera. Modern taxonomists removed genus *Podophyllum* from Berberidaceae and placed it in a separate family Podophyllaceae on the basis of pollen aggregation. The pollen grains of *Podophyllum* remains united but they are free in other genera. This shows the role of palynology in taxonomic delimitation at the family level.

The role of Palynology in delimitation at genus level is evident in Salicaceae. Salicaceae consist of 2 genera, *Salix* and *Populus* that can be distinguished on the basis of pollen characteristics. The genus *Populus* has spherical pollen grain without distinct aperture, whereas there is long narrowed 3-furrowed pollen in *Salix*.

The pollen characteristics help in differentiating species within a single genus. Based on germinal aperture the different species of *Anemone* can be distinguished. Based on exine pattern different species of *Bauhinia* (Fabaceae) can be differentiated. Pollen size played a vital role in demarcating different species of *Malva* (Malvaceae).