

CONIFER POLLINATION MECHANISMS REVISITED

Pollination mechanisms in Gymnosperms can be divided into types, depending on the shape of pollen and ovule micropyle and whether pollination drops are present. Two general types exist: pollen capture mechanisms (PCM) and extra-ovular capture and germination (ECG). Of these, PCM has the greatest diversity, as these show six different sub-types. Phylogenetic analysis of modern and extinct gymnosperms reveals that pollination drops were fundamental to pollination capture mechanisms of the earliest seed plants. The most derived types of PCM are found within Pinaceae. ECG, also derived, is restricted to a few conifer families and genera. Pollination drops provide a nectar function in gnetophytes and possibly in cycads. This provides an independent origin to study convergent evolutionary patterns in plant-insect relations.

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