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Heteromorphic self-incompatibility by SeoIncr

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Heterostyly species in two or three types of flowers (called morphs). On an individual plant flowers all have the same morph. These morphs differ qualitatively from each other in the lengths of the pistil and filaments of the anthers. The phenotype for each morph is genetically determined. When a species has two floral morphs called distil. In one of the morphs, called Pin, stamens and pistils are short lengths. In the other morph, called Thrum, stamens and pistils are long shorts. In species that exhibit heterostyly exists a different mechanism called self-incompatibility heteromorphic AI. This mechanism is unlikely to find evolutionary relationships with homomorphic incompatibility systems.

Genetics heteromorphic self-incompatibility

The genus Primula are probably the best known example of heteromorphic flowers and reproductive mechanism that these species have attracted considerable attention among botanists, geneticists and evolutionists, including Charles Darwin and the year 1862. Almost all species have Heterostyly AI. The loci responsible for the AI in these species are closely linked to those genes responsible for the polymorphism floral, so both characters are inherited together. The distilia is determined by a single gene with two alleles, tristyly by two genes with two alleles each.

The AI is sporophytic, meaning that the male determining the reaction of AI are governed by the genotype of the sporophyte that produces pollen grains.The loci of AI almost always contain two alleles in the population of plants, one of which is dominant over the other both in pollen and pistil. Thepolymorphism in the alleles correspond to the AI that governs the floral morphology , so that pollen from a morph can fertilize only pistils of the other morph. In species with tristyly flowers, each flower contains two types of stamens, each of which produces pollen can fertilize only one of the other two morphs of the population. The populations of the species contain only two genotypes distil for the locus AI: ss and Ss . Fertilization is only possible between different plants showing genotype for this locus , so that legitimate crosses (those that produce offspring) are always Ss x ss or ss x Ss .This restriction is constantly maintained a 1:1 ratio between the two genotypes in the population, which are randomly distributed in space occupied by the village. In 2005 it was determined the base sequence of one allele S of Primula vulgaris , which proved to be highly similar to sequences allelesS AI of other species.

TristÃ-licas species present, as well as locus S , another locus with only two alleles called M . In this case the number of possible genotypes is higher than in the case of distilia but always maintaining a 1:1 relationship between individuals of each type of AI.

delayed self-incompatibility

As described above, in most self-incompatible plants inhibition of pollen tube growth occurs in the stigma or style. AI mechanisms that act in the ovary have been described as delayed self-incompatibility (AIR) and are quite common in plants. AIR systems can be divided according to when that happens the inhibition of self-fertilization in the following categories:

? inhibition of incompatible pollen tubes occurs before they reach the egg .

? self-incompatibility reaction occurs by inhibition of fertilization in the egg.

? self-incompatibility is caused by the inhibition of embryo growth. In fact, this is a mechanism of post-zygotic AIR because fertilization has already occurred.

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