Article published on January 30th 2012 | Business

During the evolution of angiosperms the AI has arisen on several occasions, totally different lineages. More than 100 families of plants, among which include the Solanaceae , Poaceae , Asteraceae , Brassicaceae , Rosaceae and Fabaceae , have self-incompatible species. In fact, it is estimated that 39% of angiosperm species are AI. 2 Such a wide distribution taxonomy is consistent with the existence of several different genetic mechanisms that regulate the AI, depending on the family considered.

However, in all cases observed the same phenomenon: the grains of pollen reaching the stigma of the same plant (or plants genetically related) are unable to effect fertilization and which stop their development in some stage of the process (germination of pollen grains, pollen tube development in thepistils and fertilization of the oosphere). As a result of this impediment is not set seed after self-pollination. 1 This arrest of growth or development of pollen tubes within the pistils involves, firstly, the recognition by the pistil of pollen tubes which are the same individual and what are the other plants. On the other hand, occur after this recognition, the development of pollen tubes themselves (or of genetically related) should be discontinued. Both phenomena, recognition and cessation of growth, have been extensively studied both cytological , physiological , genetic and molecular .

As previously stated, AI systems in higher plants have evolved several times in independent lineages. At the molecular level there are three well characterized systems: the self-incompatibility system in Solanaceae and Rosaceae , that of the poppy (Papaver) and the Brassica . In two such systems are currently known genes that encode components of recognition pollen-pistil which has clearly demonstrated that proteins from the pistil and pollen involved in recognition are different from one another and the AI is a mechanism of "key lock" at the molecular level.

Types of mechanisms

When the flowers of the species are morphologically self-incompatibility that presents identical, it is said that self-incompatibility is homomorphic . By contrast, when the species have two or three different morphological types of flowers, it is said that self-incompatibility is heteromorphic and the mechanism is called heterostyly .

homomorphic self-incompatibility

The best studied mechanism of AI in plants act through the inhibition of germination or growth of pollen tubes in the stigma or style. This mechanism is based on interactions between proteins produced by a single locus called the S (English Self-Incompatibility , or self-incompatibility). The S locusactually contains two basic genes, one of which is expressed in the pistil and the other in the anther or pollen grains. Reference is made to such genesas determinants female and male, respectively. These genes are physically close in the genome are genetically linked and are considered as a singleallele . The proteins produced by the male and female determinants of the same allele interact with each other at the time of germination of pollen on the stigma and lead to the arrest of pollen tube growth. In other words, the identity of the proteins from the pollen grain and stigma AI generates a response that stops the process of fertilization since the beginning of it. When, however, a female determinant interacts with a male determining allele from a different AI, no response from AI and fertilization occurs. This brief description of the AI response in plants is usually more complicated and, often involving more than one locus of AI. Thus, in the grass, two loci

that govern the reaction of AI called S and Z .There are two types of homomorphic incompatibility, the AI and AI gametophyte sporophyte, which are described below.

http://www.yongefloristhamilton.ca/

Article Source:
http://www.articleside.com/business-articles/self-incompatibility-flowers.htm - Article Side

Seolncr - About Author:
a Flower shop hamilton a Canadian leading online flower shop. The same day a flower delivery hamilton. Premium quality - affordable prices visit now http://www.yongefloristhamilton.ca/

Article Keywords:
Flower shop hamilton, flower delivery hamilton

You can find more free articles on Article Side. Sign up today and share your knowledge to the community! It is completely FREE!