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To this end, three events must occur physiology : first, the transition from sexually immature plant at the mature stage (ie, the transition to flowering), and second, the transformation of the fate of vegetative meristem to a flower meristem or inflorescence and finally, the architecture of the various organs of the flower. On this last step, described a model , known as the ABC model , which attempts to explain from the perspective of molecular genetics and development of the biological basis of this process.

To start the differentiation of the meristem to a flower is precisely the existence of a stimulus that activates the division exogenous mitotic meristem, especially on the sides, where new primordia are generated. Moreover, these meristems, due to this stimulus, follow a pattern of development conducive to generating floral meristem , and vegetative meristems , the main difference with them, besides the obvious disparity in the target organ is the whorled phyllotaxis , ie the absence of elongation of the stem between successive whorls of primordia. These whorls, following a development acropetal , give rise to the sepals , petals , stamens and carpels . In addition, another difference with vegetative axillary meristems is that the flower is "determined", which means that, once differentiated, the cells will not divide further.

The identity of the organs present in the four whorls of floral results from the interaction of at least three types of gene products of different functions.According to the ABC model, A and C functions are required, respectively, to determine the identity of whorls of perianth and reproductive whorls. Both functions would be exclusive, and the absence of one of them, cause the other function passed to determine the identity of all the whorls of the flower. The existence of the function B would distinguish the identity of petals of the identity of sepals in the second whorl, and the identity of stamens of the identity ofcarpels in the third whorl.

The concept of flower according to the "foliar theory" which suggests that all flower parts are modified leaves structurally and functionally specialized in the reproduction or protection, was formulated as early as the eighteenth century . In 1790 when Goethe published his work "An attempt to interpret the Metamorphosis of Plants" (" Die Metamorphose der Pflanzen Versuch erklaren zu "). In this book, consisting of 123 numbered paragraphs, Goethe wrote:

"... We should also say that a stamen is a contracted petal as a petal is a stamen expanding or that the sepal is a contracted cauline leaf approaching a state of refinement, such as a leaf is a sepal expanded cauline by the influx of coarser juices. "

The transition from vegetative phase to a reproductive phase is a drastic change in the life cycle of a plant, perhaps most important, for its proper development is essential to ensure the generation ofoffspring . This jump is characterized by the induction and development of the inflorescence meristem, which will generate sets of flowers or a flower, in the event that they are lonely. The aforementioned change morphogenetic has both endogenous and exogenous elements: for example, there are requirements for number of leaves or biomass total, to start the process, but also require certain environmental conditions , such as a photoperiod characteristic. Clearly, regulators plants, phytohormones , are involved in the process, highlighting its importance the role of gibberellins .

There are many routes of signal transduction that modulate the molecular biology of the process. However, it should be noted, in the model plant Arabidopsis thaliana , the role of three genes: Flowering Locus T (FT), LEAFY (LFY) overexpression suppresor OF OF CONSTANS1 (SOC1 ,

also called AGAMOUS-LIKE20). These genes have both common and independent roles in the floral transition. SOC1 is a gene type MADS-box , and includes responses to photoperiod, vernalization and gibberellins.

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