Universidad Politécnica de Madrid

An innovative way to increase the flowers, seed and fruits production

A female scientist from UPM has developed a method to enhance crop yield by the contact of roots, aerial parts or even the substratum of the plant fungus, Colletotrichum tofieldiae.

A new method developed at the **Centre for Plant Biotechnology and Genomics** (CBGP UPM-INIA) has shown that, by the contact of a plant with a strain of the **Colletotrichum tofieldiae** microorganism previously isolated, this plant can increase the number, size or weight of its seeds, fruits and flower. This discovery has been protected by patent, and its implementation could lead to cost savings and to lower environmental impact since this fertilizing system represents an alternative to the mineral fertilizers used so far.

Within the agriculture sector, the **Colletotrichum fungi** are well known because they have a large amount of crop pathogen. However, this species has other subspecies that does not harm their host plants and they actually have many benefits. The female researcher Soledad Sacristán from CBGP focuses her work on these microorganism-plant symbiotic relationships.

Researchers have found that by applying a composition that contains **Colletotrichum tofieldiae**, a non-pathogenic fungus for the **Arabidopsis thaliana** model plant, this plant can produce bigger seeds without substantially affecting its vegetative growth. In other words, the application of this microorganism can produce an efficient usage of the plant resources.

This method can help increase crop yields, its application is similar to use a fertilizer but having better results and without the contamination issues than can produce the mineral fertilizers. Thus, its application in agriculture, horticulture, forestry plants, ornamental plants or any other plant with commercial interest would represent a significant environmental and economic saving.

This method was patented (**P201331839: A method to increase the production of flower, seed and fruit of plants**), and there is an exclusive commercial patent license agreement with Plant Response Biotech S.L., a spin-off company from the Universidad Politécnica de Madrid created in 2008 that focuses its work on the development of agrobiological products.

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