Plant virus that combats fungal pathogens may yield low-cost COVID-19 vaccine

A variety of scientists worldwide are changing their primary research focus these days with the aim to bring solutions for the devastating SARS-CoV-2 pandemic. Plant researchers are no different.

The CSIC researchers at CRAG María Coca and Juan José López-Moya are proposing to use their expertise in plant biotechnology and virology, respectively, to produce SARS-CoV-2 antigens that could be used as vaccines.

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Humans have relied on plants to cure diseases since ancient times. Modern pharmacotherapy includes many drugs whose active compounds were initially discovered in plants, and wild plants are still under investigation in the hope to find new bioactive compounds.

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In 2019, María Coca, together with the expert on plant viruses from the IBMCP José Antonio Darós, already demonstrated that they can produce active antifungal compounds in Nicotiana benthamiana plants.

To do so, they engineered a plant virus to produce antifungal proteins inside the plant leaves. This same strategy could be now used to produce SARS-CoV-2 antigens, not only in N. benthamiana, but also in lettuce plants.

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Among many other advantages …. plants can be grown easily in developing countries that lack sophisticated protein production methods, therefore contributing with large-scale solutions to this global crisis.

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