



**viruses**



*Special Issue Reprint*

## **The Application of Viruses to Biotechnology**

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Edited by

Carla Varanda

Patrick Materatski

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Viruses are microscopic agents that exist worldwide and are present in humans, animals, plants, and other living organisms in which they can cause devastating diseases. However, the advances of biotechnology and next-generation sequencing technologies have accelerated novel virus discovery, identification, sequencing, and manipulation, showing that they present unique characteristics that place them as valuable tools for a wide variety of biotechnological applications. Many applications of viruses have been used for agricultural purposes, namely concerning plant breeding and plant protection. Nevertheless, it is interesting to mention that plants have also many advantages to be used in vaccine production, such as the low cost and low risks they entail, showing once more the versatility of the use of viruses in biotechnology. Although it will obviously never be ignored that viruses are responsible for devastating diseases, it is clear that the more they are studied, the more possibilities they offer to us. They are now on the front line of the most revolutionizing techniques in several fields, providing advances that would not be possible without their existence. In this book there are presented studies that demonstrate the work developed using viruses in biotechnology. These studies were brought by experts that focus on the development and applications of many viruses in several fields, such as agriculture, the pharmaceutical industry, and medicine.



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