

## **PRODUCTION OF BIOPHARMACEUTICALS FROM PLANT PLATFORMS: FACTS AND ADVANTAGES**

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### **Abstract**

Production of recombinant proteins as therapeutic agents in plant platforms offers a great potential for combating infectious diseases in developed and developing countries. Vaccines of plant origin have demonstrated that effectively provide an immune response. Biopharmaceuticals produced in plants are cheap to produce, require fewer steps to purify them, and can be stored in room temperature for long periods of time. So, they have high potential of use. This article points to describe the results achieved until today regarding the production of biopharmaceuticals from plant platforms, with particular emphasis on those infectious diseases that are more prevalent in the world. Among them we can mention HIV / AIDS, hepatitis B, tuberculosis and others. In our work we analyze advantages of plant platforms for production of recombinant proteins compared of them in bacteria or animal cells. This analysis based on numerous literature has revealed important aspects of biosafety and efficiency of plant platforms as: the plant cells can not be infected by the same infectious agents like mammals cells; these cells, unlike of bacterial cells, are eukaryote, having the biological mechanisms needed to complete the production of complex protein; pharmaceuticals produced by plants have certainly lower cost and the technology for the production of the raw material is simple and well known; the purification of the final product requires fewer steps and is cheaper, but they can be used half purified and raw, too; plant platforms have demonstrated a great capacity and flexibility in the production of pharmaceuticals and they provide many opportunities for the expression of recombinant proteins. Approval of the first rules for products of plant platforms, two years ago, paves the way for further developments in the field.

**Keywords:** *biopharmaceuticals, recombinant proteins, plant platforms, diseases.*