

## MOLECULAR FARMING AS AN APPROACH FOR PRODUCTION OF USEFUL METABOLITES

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Received-02.12.2019, Revised-23.12.2019

**Abstract:** Recently, through modern biotechnology, it is now recognized that plants are potentially a new source of pharmaceutical proteins including vaccines, antibodies, blood substitutes and other therapeutic entities. Unlike mammalian-derived rDNA drugs, plant-derived antibodies, vaccines and other proteins are particularly advantageous since they are free of mammalian viral vectors and human pathogens. Advantages offered by plants include also low cost of cultivation and high biomass production, relatively fast “gene to protein” time, low capital and operating costs, excellent scalability, eukaryotic posttranslational modifications and a relatively high protein yield. Crop plants can synthesize a wide variety of proteins that are free of mammalian toxins and pathogens. Crop plants produce large amounts of biomass at low cost and require limited facilities. Since plants have long been used as a source of medicinal compounds, molecular farming represents a novel source of molecular medicines, such as plasma proteins, enzymes, growth factors, vaccines and recombinant antibodies, whose medical applications are understood at a molecular level. Bio-pharming promises more plentiful and cheaper supplies of pharmaceutical drugs, including vaccines for infectious diseases and therapeutic proteins for treatment of such things as cancer and heart disease. This paper provides a brief knowledge about molecular farming and their issues.

**Keywords:** Biotechnology, Pharmaceutical proteins, Vaccines, rDNA, Recombinant antibodies

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