



## **METABOLIC ENGINEERING OF PLANT SECONDARY METABOLISM : A PROMISING APPROACH TO THE PRODUCTION OF PHARMACEUTICALS**

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Plants elaborate an astonishing array of secondary metabolites which display a large variety of pharmaceutical and health promoting activities. Substantial breeding efforts have been taken to increase the yield of desired compounds and to select plants with favorable growth characteristics. The rapid progress in recombinant DNA technology, cell culture and plant transformation methodology has now set the stage for the targeted improvement of crops and medicinal plants. By the introduction and overexpression of specific genes in sense or antisense orientation it is possible to increase secondary metabolite production or to reduce the synthesis of undesirable compounds. Moreover, new substances can be synthesized, which are produced only in a restricted number of species. Several examples will be given to illustrate these various approaches. Moreover, general information on plant transformation methods will be provided, and problems related to this technology will be discussed.

**KEYWORDS :** *Metabolic engineering, secondary metabolites, transgenic plants.*