

# Sustainable management of medicinal and nutraceutical plants - a partnership for bioactive compound production?

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## Abstract

Medicinal and nutraceutical plants are plants with medicinal or nutritional properties or both. Medicinal plants are plants that exert beneficial pharmacological effect on the human or animal body or possess therapeutic properties and some of them have been used in traditional medicine practices since prehistoric times. Nutraceutical plants are plants rich in nutrients and substances that show pharmaceutical properties, that confer health benefits. Indeed, plants synthesize hundreds of chemical compounds, following a reply mechanism against biotic and abiotic stresses. And those compounds have several functions, e.g. defense and protection against insects, fungi, diseases, and herbivorous mammals, or as a defense against heat stress or water stress. The majority of the bioactive compounds are known for their anticancer, antimicrobial, antioxidant, antidiabetic, and anti-tubercular properties, among others. Plant health and productivity are greatly affected by abiotic and biotic stresses [1]. However, studies on the relationship between plants and living beings: e.g. fungi, bacteria and plants and factors such as temperature or irradiation, offer an option of altering the biosynthetic pathways that produce diverse bioactive and new compounds of economic significance. Therefore, the aim of this work is to present current knowledge on how biotic and abiotic stresses can affect the synthesis of plant secondary compounds in certain medicinal and nutraceutical plants and to provide hints on how a sustainable crop management can contribute to a higher production of plant metabolites of economic significance with limited yield loss.

## References

[1] Usman M., et al. Synergistic partnerships of endophytic fungi for bioactive compound production and biotic stress management in medicinal plants *Plant Stress*, 11, 100425, (2024).