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Application of abiotic stresses for enhancing secondary metabolite production: A review

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Abstract

Plants are the backbone of traditional systems of medicine and are also revered for their contribution to development of modern drugs. The therapeutic potential of plants depends on the quality and quantity of phytoconstituents present. Plant growth and the biosynthesis of plant metabolites are greatly influenced by biotic and abiotic factors. Scientific investigations have shown that various abiotic stresses including salt stress, flooding, drought, fertilization, shade, soil types etc. influence plant growth and formation of active constituents. Thus, optimization of abiotic stresses may help in increasing levels of plant metabolites and thus enhancing the bioactivity. The present review summarizes the importance of various abiotic stresses on plant growth and production of bioactive constituents. The information was collected by visiting various online databases including Google scholar, PubMed, Science direct, www.manybooks.net, http://www.pharmatext.org, www.getfreebooks.com etc. from 2000 to 2019. Literature shows that plants respond to abiotic stresses by modifying their morphology, physiology and phytochemical nature. Changes in plant growth and their bioactive metabolites are reported with alteration in abiotic stresses. This knowledge however is not translated to the fields during cultivation of valuable medicinal plants. From this review the authors conclude that, alteration of environmental factors during growth/cultivation of medicinal plants may ensure supply of plants with increased marker content which ensures better activity.

Biography:

Hurmat has completed her M. Pharmacy at the age of 21 years from Punjabi University, Patiala (Punjab) and pursuing Ph.D from Punajbi University, Patiala since 2016 from Department of Pharmaceutical sciences & Drug research. She is the working as JRF under UGC- MANF fellowship.

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