

A REVIEW ON PLANT HORMONES PRODUCING MICROORGANISMS

Anurag Verma*; **Vaibhav Rastogi****; **Prabhakar Viswakarma*****

Deepak Singh****

*Professor & Principal,

Department of Pharmacy, Teerthanker Mahaveer University,
Moradabad, Uttar Pradesh, INDIA

**Department of Pharmacy, Teerthanker Mahaveer University,
Moradabad, Uttar Pradesh, INDIA

Email id: vaibhavr.pharmacy@tmu.ac.in

***Department of Pharmacy, Teerthanker Mahaveer University,
Moradabad, Uttar Pradesh, INDIA

**** Lecturer,

Department of Pharmacy, Teerthanker Mahaveer University,
Moradabad, Uttar Pradesh, INDIA

DOI: 10.5958/2249-7137.2021.02498.8

ABSTRACT

Plant hormones, also known as phytohormones, are divided into five categories: auxins, abscisic acid, cytokines, gibberellins, or ethylene. Many more phytohormones have now been discovered. The capacity to generate phytohormones is found in a wide range of microbial species, with the greatest information gathered on the synthesis and function of auxin. The function of various phytohormones in the interaction with the plant is addressed in this chapter, as well as microbial biosynthesis, control, and regulation of microbial production. Microbial phytohormone synthesis is a powerful method for changing plant physiology, resulting in a variety of effects ranging from disease to plant growth stimulation. However, there is currently a paucity of genetic evidence for the involvement of several phytohormones in microbe-plants interactions, casting doubt on the relevance of microbial synthesis. Plant studies in an agronomic context, along with targeted methods focused on genetic evidence for the function of phytohormones, will enable uncovering the significance and potential of this interesting microbial feature.

KEYWORDS: *Auxins, Cytokinins, Ethylene, Microbe, Plant Hormones.*

REFERENCES:

1. Qureshi O, Sohail H, Latos A, Strap JL. The effect of phytohormones on the growth, cellulose production and pellicle properties of *Gluconacetobacter xylinus* ATCC 53582. *Acetic Acid Bact.*, 2013;2(1). doi: 10.4081/aab.2013.s1.e7.
2. Sanchez L. et al. Rhamnolipids elicit defense responses and induce disease resistance against biotrophic, hemibiotrophic, and necrotrophic pathogens that require different signaling pathways in *Arabidopsis* and highlight a central role for salicylic acid. *Plant Physiol.*, 2012

Nov;160(3):1630-41. doi: 10.1104/pp.112.201913.

3. Demain AL, Fang A. The natural functions of secondary metabolites. *Advances in biochemical engineering/biotechnology*. 2000;69:1-39. doi: 10.1007/3-540-44964-7_1.
4. Lin HR, Shu HY, Lin GH. Biological roles of indole-3-acetic acid in *Acinetobacter baumannii*. *Microbiol. Res.*, 2018 Nov;216:30-39. doi: 10.1016/j.micres.2018.08.004.
5. Ravindran B, Wong JWC, Selvam A, Sekaran G. Influence of microbial diversity and plant growth hormones in compost and vermicompost from fermented tannery waste. *Bioresour. Technol.*, 2016, doi: 10.1016/j.biortech.2016.03.032.
6. Khalaf EM, Raizada MN. Taxonomic and functional diversity of cultured seed associated microbes of the cucurbit family. *BMC Microbiol.*, 2016;16: 131. doi: 10.1186/s12866-016-0743-2.
7. Asari S. et al. Analysis of plant growth-promoting properties of *Bacillus amyloliquefaciens* UCMB5113 using *Arabidopsis thaliana* as host plant. *Planta*, 2017;245:15–30. doi: 10.1007/s00425-016-2580-9.
8. Howden AJM, Preston GM. Nitrilase enzymes and their role in plant-microbe interactions. *Microbial Biotechnology*. 2009;2(4):441–451. doi: 10.1111/j.1751-7915.2009.00111.x.
9. Parthasarathy A, Cross PJ, Dobson RCJ, Adams LE, Savka MA, Hudson AO. A Three-Ring circus: Metabolism of the three proteogenic aromatic amino acids and their role in the health of plants and animals. *Frontiers in Molecular Biosciences*. 2018, doi: 10.3389/fmolb.2018.00029.