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Plant Endophytes: A Treasure House of Antimicrobial Compounds

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Abstract

Recent decades have witnessed a significant progress in identifying novel and economically viable therapeutic compounds from natural resources. There is an increased interest in determining various plant-based compounds as an alternative to commercially available antibiotic drugs. However, endophytes, despite being a treasure house for a number of secondary metabolites, including antimicrobial compounds, are still less explored. These microbes are well known to produce hydrolytic enzymes, phenols, and terpenes which contribute to plants' defense against pathogens as well as predators. Endophytes using similar biosynthetic pathways to their host sometimes mimic the production of secondary metabolites because of which they become equally efficient for drug development. This chapter explores the endophytes known for producing antimicrobial compounds and describes various biosynthetic pathways used by them for their production. In addition, we have discussed the role of endophyte-derived antimicrobial metabolites in both their host plant and their benefits to mankind in combating the problem of antimicrobial resistance.