

Plant-derived antimicrobials: insights into mitigation of antimicrobial resistance

ABSTRACT

Antibiotic resistance had first been reported not long after the discovery of the first antibiotic and has remained a major public health issue ever since. Challenges are constantly encountered during the mitigation process of antibiotic resistance in the clinical setting; especially with the emergence of the formidable superbug, a bacteria with multiple resistance towards different antibiotics; this resulted in the term multidrug resistant (MDR) bacteria. This rapid evolution of the resistance phenomenon has propelled researchers to continuously uncover new antimicrobial agents in a bid to hopefully, downplay the rate of evolution despite a drying pipeline. Recently, there has been a paradigm shift in the mining of potential antimicrobials; in the past, targets for drug discovery were from microorganisms and at current, the focus has moved onto plants, this is mainly due to the beneficial attributes that plants are able to confer over that of microorganisms. This review will briefly discuss antibiotic resistance mechanisms employed by resistant bacteria followed by a detailed expository regarding the use of secondary metabolites from plants as a potential solution to the MDR pathogen. Finally, future prospects recommending enhancements to the usage of plant secondary metabolites to directly target antibiotic resistant pathogens will be discussed.

Keyword: Antimicrobial resistance; Plant metabolites; Resistance reversal; Synergism