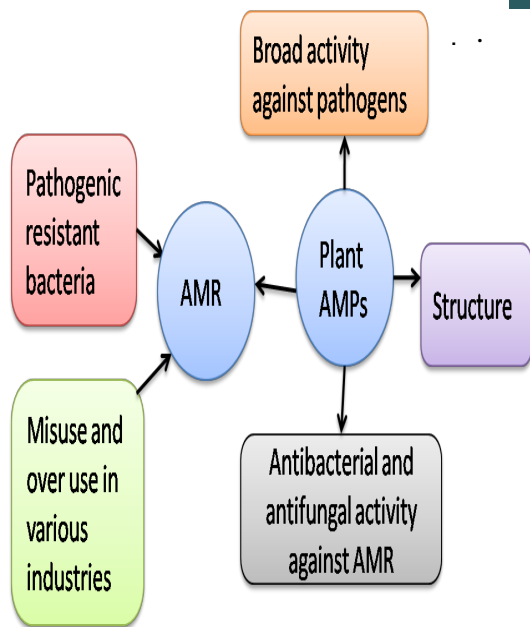




# “Study of Plant Antimicrobial Peptides (AMPs) for the Inhibition of Antibiotic-Resistant Pathogenic Bacteria”

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## Abstract:



## Plant Antimicrobial peptides :

- Potential use as alternate antibiotics in the fight against AMR.
- Broad activity against wide variety of pathogens
- Different structure, function and target.
- Can be isolated from different part of plants including roots, seeds, flowers, stem, leaves .
- Most AMPs have alpha helical structure, positive net charge and hydrophobic amino acids. They help to bind with negative portion of bacterial membrane.
- Hydrophobic amino acids helps insertion in hydrophobic membrane. The alpha helical structure of AMPs causes pore formation and then cell lyses which ultimately leads to cell death.
- Other than this, AMPs can also inhibit bacterial intracellular molecules like RNA, DNA, protein etc. which leads to cell death.

No.	PAMPs	Activity	References
1.	Purothionins	Antibacterial	Fernandez et al. 1972
2.	CaThi	Antibacterial, Antifungal	Taveira et al. 2014
3.	Fa-AMP1	Antibacterial, Antifungal	Fujimura et al. 2003
4.	ZmD32	Antibacterial, Antifungal	Kerenga et al. 2019
5.	Snakin-1	Antibacterial, Antifungal	Segura et al. 1999

Table 1: Some plant AMPs and their activities

## Conclusion :

- Antibiotic resistance has been on the rise among pathogens, crating a severe health hazard.
- Plant antimicrobial peptides (PAMPs) have the potential to significantly inhibit drug-resistant pathogens, alongside possessing broad host activity. Thus they can be explored as future alternative antibiotics.

## References:

- Bahar, A. A., & Ren, D. (2013). Antimicrobial peptides. *Pharmaceuticals*, 6(12), 1543-1575.
- Satchanska, G., Davidova, S., & Gergova, A. (2024). Diversity and Mechanisms of Action of Plant, Animal, and Human Antimicrobial Peptides. *Antibiotics*, 13(3), 202.

## Introduction :

- Antimicrobial resistance (AMR) happens when microbes e.g. bacteria, fungi and viruses develop mechanisms against drugs which are designed to kill or control them.
- The need of the hour is to look for potential alternatives, which can significantly inhibit these pathogens. One potential source is Plant antimicrobial peptides (PAMPs).