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Editorial

Natural Condiments as Antimicrobial Agents: Uses and Effectiveness

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Recent research on use of natural condiments as preservative agents and anti-microbial agents is quite increasing. Side effects and the toxicity of chemical preservatives and development of resistance to multiple drugs is might be one of the reasons. Recent work on use of rhizomes of various medicinal plants like Curcuma longa, Colocasia, Solanum tuberosum has proven to be effective against pathogenic strains like Streptococcus pneumoniae and studies on preservative efficacy studies are quite good with Colocasia. Recent studies by Lenka., et al. from Scientific reports of Nature publishing group about the compounds present in essential oils known to contain sesquiterpenes and monoterpenes the major components responsible for the antimicrobial activity and may create a path for new drug discovery. Drug targeting and proper design of drug will play a key role in development of drug resistance by pathogens and microbial death.

Studies by SK Mahaveer form Nature publishing group highlighted the importance of β-Sitosterol isolated from rhizome part of the plant Cautleya spicata (Sm.) proven to effective against Salmonella enterica serotype typhi, Escherichia coli, Listeria monocytogenes, and Staphylococcus aureus. Turmeric is one of the natural condiments used to treat various ailments and diseases and the antimicrobial activity is due to the curcuminoids presence in plant rhizome.

Use of antimicrobial peptides from natural condiments for drug formulation and targeting on cell wall synthesis may overcome the development of multidrug resistance and it can be a broad-spectrum antibiotic for both gram-positive bacteria and gram-negative bacteria if the targeting is liposaccharide (LPS) there by destroying the pathogenicity of microbes. Antifungal properties are most commonly seen with turmeric and the volatile compounds present in natural condiments may be one of the reasons.

Staphylococcus aureus is one of the tedious organisms associated with nosocomial infections and it is one among the pathogens with repeated emerging strains that show multidrug resistance and easily transferred through fomites. It is a gram-positive bacterium with catalase positive so targeting catalase can prevent the multidrug resistance development to the minimal. Colocasia esculenta is one of the edible rhizomes used recently and can be used as a natural preservative for curd and microbial load associated is very less and the strain in microbial load is confirmed to be as Lactobacillus. Previous natural preservatives what we have used either inhibit or kill the lactobacillus which is a probiotic and ecofriendly organism which may be detrimental.