Farheen Fatima et al., Med Aromat Plants 2016, 5:5(Suppl)
http://dx.doi.org/10.4172/2167-0412.C1.005

Impact of phytochemical diallyl disulphide (DADS) on the biochemical components of the cell envelope of *Staphylococcus aureus*

Farheen Fatima[1] and Kashinath R T[2]
[1]University of Tabuk, KSA
[2]RGUHS, India

Diallyl disulphide (DADS) is a phytochemical found in the plants of the genus *Allium*. It is the principal organosulphuric component of distilled garlic oil. Many medicinal benefits like antimicrobial, antiviral and insecticidal are attributed this compound. However, the biochemical explanation for such an action remains unexplored. This current study strives to explore the explanation for antimicrobial activity of the compound using the most common skin inhabitant Gram positive bacteria, commonly causing nosocomial infections- *Staphylococcus aureus*. The minimum inhibition concentration (MIC), minimum bactericidal concentration (MBC) of DADS, its effect on growth curve and time kill curve of S. *aureus* has been established. In the current study, S. *aureus* was cultured in the broth containing 1/8 MIC of DADS. The staphylococcal cells were harvested; biochemical components were extracted and quantitated using appropriate biochemical analytic tests. The biochemical components focused on were of those abundantly present and those that contribute to the materialization of the staphylococcal cell envelope total lipids, total lipid phosphorous and total carbohydrates. The biochemical component extracts of S. *aureus* tested revealed significant reduction in the total lipids (70%), total lipids phosphorous (50%) and total carbohydrates (34%). This reduction in the components may be attributed to the hypolipidemic and hypoglycemic properties of DADS and could further lead to changes in the anabolic processes. Since the cell envelope of the bacterial cell is primarily made up of lipids, phospholipids and peptidoglycan (a carbohydrate polymer). The evident reductions in the studied components indicate reflective impact of DADS on the cell envelope of S. *aureus*. This study can be extrapolated in innovation of a new phytochemical-antibiotic against the life threatening multidrug resistant human pathogens.

Biography

Farheen Fatima is serving as an Assistant Professor, teaching Diagnostic Microbiology and Diagnostic Parasitology. She did her Post-graduation studies specializing in Medical Microbiology from one of the most reputed university- Manipal Academy of Higher Education, India. She was conferred a Doctorate degree in Medical Microbiology from Vinayaka Mission University, Salem. She has worked as a Principal Investigator in Epidemiologic surveys centering microbial and co-investigator in sero-epidemiology and parasitic infections in children. Currently, she is working with the Desert Herbs to explore their individual and synergistic antimicrobial potential.

f.khizar@ut.edu.sa

Notes: