

Global Congress on

Biochemistry, Glycomics & Amino Acids

December 08-09, 2016 San Antonio, USA

Effect of N-acetyl-L-cysteine on the growth and the antibiotic resistance of *Pseudomonas aeruginosa* isolated from burn infection

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Theoretical: N-acetyl-L-cysteine (NAC) is an antioxidant related to L- cysteine, being its acetyl derivative. NAC is used routinely in medical treatment of chronic bronchitis, cancer, and paracetamol intoxication, it is one of the smallest drug molecules in use and it has antibacterial properties. The molecule is a thiol- containing antioxidant that disrupt disulfide bond in mucus, and has cysteine utilization. NAC is able to inhibit growth of both Gram positive and Gram negative bacteria; also NAC decreases the production of extracellular polysaccharide of both Gram positive and Gram negative bacteria, when it is present in the culture media during growth.

Aim of the Study: This study is aimed to show the effect of NAC on bacterial growth and also its effect on antibiotic effect.

Methodology: To study the effect of NAC on bacterial growth: Nutrient agar was and added in petri dish then NAC was added to each plate at different volumes to obtain the final concentration of (0.05, 0.1, 0.2, 0.4, 0.6, 0.8 and 1) mg/ml, respectively. The plates were inoculated by bacterial isolates. The results were read according the presence of growth or absence of growth. The combination effect of some antibiotics with NAC on the growth of isolates: Muller Hinton agar was used to show the effect of the following antibiotics Kanamycin, Streptomycin, Gentamycin, Cefixime, Refampicin, and Ciprofloxacin in the presence of 0.01mg/ml of NAC. After solidification of the media, the bacteria were inoculated and were spread on the culture media, and then the antibiotic discs were placed.

Conclusion: This study concluded that NAC is considered to be a non-antibiotic drug but showed antibacterial (bacteriostatic) properties when added to the media alone. It is an effective mucolytic agent having antagonistic effect to the activity to the several antibiotics.

Biography

Lamees Abdul-Razzaq Abdul-Lateef is an Assistant Professor of Molecular Microbiology, and has her expertise in many fields of Microbiology research. She participated in many international and local conferences. She participated in International Distributor Training in Korea for one week in 2013. She has supervised many graduate students (MSc and PhD). She has many papers published in various local and international journals.

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