



## Antibacterial activity of some natural bioactive materials: Green tea and Bee honey against pathogenic strains

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Received : November 2014  
Accepted : March 2015  
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**Abstract :** Natural bioactive products available in the market like Green tea and Honey are consumed for their antioxidant properties, medicinal properties etc. This study was done to determine the antibacterial activity of green tea and honey against clinically isolated pathogenic strains *Escherichia coli* and *Staphylococcus aureus* and their inhibition at different time intervals using concentrations similar to the amount usually taken for daily consumption. The clinical strains were checked for their susceptibility and resistivity against antibiotics. The aqueous as well as ethanolic extract of green tea and honey dilution were prepared. The antibacterial activity was determined by using paper disc diffusion method. The aqueous extract was effective at 150mg/ml concentration but ethanolic extract showed maximum zone of inhibition at the same

concentration. Similarly, honey exhibited maximum zone of inhibition at 100% dilution among the other dilutions taken under observation. The phytochemical analysis was also done which defined the presence of phenol, tannin, flavonoid and absence of steroids. Time kill assay was performed in which tubes were taken, each with final volume of tea extract and nutrient broth of 10ml, similar steps were followed for honey dilutions. Complete inhibition of growth was observed at 6 hours and 12 hours in case of ethanolic extract at 150mg/ml against *E. coli* and *S. aureus*, whereas in aqueous extract it was achieved at 12 hours and 24 hours at the same concentrations. 100% dilution of honey exhibited complete growth inhibition of *E. coli* and *S. aureus* at 12 hours.

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**Key Words:** Bioactive products, antibacterial activity, phytochemical analysis, time kill assay.

### Introduction :

Natural bioactive products like Green tea (*Camellia sinensis*) and Honey have been reported to have antioxidant and antimicrobial properties. Green tea is a non fermented tea. The tea is an infusion of leaves that has been consumed for centuries as a beverage and is valued for its medicinal properties. It has been reported to have