

**Biochemical changes and antibacterial study of fumes on pathogenic microorganisms**

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**ABSTRACT**

The lifestyle of people in this changing world has intensified the quantum of pollution paving way to new diseases. Microbial pollution is the most important type of pollution for personnel working in laboratories, hospitals, industries of food and beverages. The widely adopted method of fumigation in microbial labs, hospitals is the usage of formaldehyde with potassium permanganate. Frequent usage of formaldehyde can lead to sulphhydryl poisoning, protein denaturation leading to cancer. The smoke of medicinal plants can be used as a potential alternative. In this study four common pathogenic organisms in the environment namely *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* were exposed to fumes of Sambrani, Incense stick and Dharbai to look for antibacterial activity and changes, if any, on their structural compositions like total protein, membrane protein, phospholipid before and after exposure to fumes. The results showed that fumes of sambrani completely inhibited the growth of *K.pneumoniae* and *S.aureus*, showing a drastic decrease in the amount of total protein in *K.pneumoniae*, *E.coli*. The concentration of total protein, membrane protein was also found to be decreased in other organisms after exposure to fumes of dharbai, incense stick. The amount of phospholipids in all the organisms was found to be more after exposure to fumes. From this study it can be concluded that exposure to fumes of sambrani, incense sticks, dharbai shows antibacterial activity and changes in biochemical parameters on pathogens. Thus the fumes can be recommended as fumigant.