



## **Efficacy of Spice Extracts Against Four Pathogenic Bacteria**

**Dania Sana\*, Samania Saman\*, S. Bedi\*\***

\*B.Sc. III, Dept. of Industrial Microbiology, Patna Women's College, Patna University, Patna.

\*\*Reader, Department of Botany, Patna Women's College, Patna University, Patna.

---

*The antimicrobial effect of ethanol (60%), sterile distilled water and diethyl ether extracts on Syzygium aromaticum (Clove), Elleteria cardamom (Small cardamom), Nigella sativa (Black cumin), Cinnamonum zeylanicum (Cinnamon) against four pathogenic strains of bacteria: Staphylococcus aureus, Streptococcus pyogenes, Escherichia coli and Shigella flexneri, were determined using Agar well diffusion method. The results obtained showed that all spices had antimicrobial properties. The ethanolic extract of black cumin was found to be the very effective and gave the widest zone of inhibition (29 mm) against Staphylococcus aureus and diethyl ether extract gave 32 mm of inhibition against Shigella flexneri. The sterile water extract of clove was found to be equally effective giving zones of inhibition of 24 mm and 23 mm against Escherichia coli and Shigella flexneri, respectively. Streptococcus pyogenes showed a greater resistance to the sterile water and ethanolic extracts of all the four spices. However, it was inhibited to an extent by the diethyl ether extract of cinnamon. The results further showed that sterile distilled water and diethyl ether were better solvent for extracting antimicrobial chemicals from the spices as compared to 60 % ethanol. Also, the antimicrobial activity was influenced to some extent by the extractive solvent.*

**Keywords:** Spice extract, Pathogenic bacteria, Extractive solvents

---