

In Vitro Antibacterial Activity of Plant Extracts and oils Against *E. coli* and *Salmonella Gallinarum* Isolated from Poultry

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Abstract—*The increased concern about the potential for antibiotic resistant strains of bacteria has compelled the researchers to explore the utility of other non therapeutic alternatives as feed additives in animal production. The present study was conducted to find out the minimum inhibitory concentrations and antibacterial properties of plant extracts (water and methanol extract of Garlic bulb, Clove bud, cinnamon bark, Tulsi leaf, Tamarind leaf and bark, Bougainvillea leaf, Black pepper seed, Black cumin seed and Ajwain seed) and oils (Cinnamon bark, Clove bud, Garlic bulb and Ajwain seed oils) against major poultry pathogens such as *E. coli* and *Salmonella Gallinarum*. Cinnamon bark oil showed lowest MIC against *E. coli* (0.98-1.56 µl/ml) and *Salmonella Gallinarum* (1.56-1.95 µl/ml) which was followed by Ajwain seed oil (1.562-1.953µl/ml against both bacteria) and Clove bud oil (6.25-7.81 µl/ml against *E. coli* and 3.125-3.91 µl/ml against *Salmonella Gallinarum*). Cinnamon bark oil and Ajawan seed oil produced highest zone of inhibition against *E. coli* (23 mm, 25 mm) and *Salmonella Gallinarum* (33 mm, 27 mm) which is even more than common antibiotics. The zone of inhibition for clove bud oil and garlic bulb oils was 17 and 9 mm, respectively against *E. coli* and 15 and 8 mm, respectively against *Salmonella Gallinarum*. It is concluded that Cinnamon bark oil, Ajwain seed oil and clove bud oils showed antibacterial properties against major poultry pathogens such as *E. coli* and *Salmonella Gallinarum*.*
