

Antibacterial effect of *Neolitsea cassia* extract on *Salmonella* and *Escherichia coli*

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Abstract

Foodborne diseases are mainly associated with the consumption of meat and meat products contaminated with pathogenic microorganisms such as bacteria, viruses and parasites. Among them bacteria play a vital role. *Salmonella* and *Escherichia coli* are considered as leading causes of food-associated bacterial illness globally. Antimicrobials are the drugs of choice to treat bacterial infections in human & animal and they are also used in sub-therapeutic levels to maintain animal and human health. Indiscriminate use of antimicrobials has resulted in the emergence of antibiotic resistant and the resistant bacteria can be transmitted to human through the food chain. In order to address this globally important issue, scientists are in search of alternatives to antibiotics, hence the researches on natural products are increasing. The present study investigated the *In vitro* antibacterial effect of *Neolitsea cassia* (*Dawul kurundu*) extract on *Salmonella* and *E. coli* isolated from broiler chicken meat. *In vitro* antibacterial effect against 11 *Salmonella* spp. and 04 *E. coli* isolates was studied by well diffusion assay with ethanol extract of *N. cassia* at three different concentrations (500 mg/mL, 250 mg/mL and 125 mg/mL) and Ceftriaxone (30 µg) was used as the standard antibiotic. This study revealed that all the bacterial isolates showed growth inhibition at varying degrees with three different concentrations of the ethanol extract where the significantly ($p < 0.05$) highest inhibition was found at the 500 mg/mL concentration of the extract for all the tested isolates. Maximum inhibition among *E. coli* isolates was 19.81 ± 2.64 mm whereas among *Salmonella* isolates was 18.99 ± 0.32 mm at 500 mg/mL of ethanol extract of *N. cassia*. The lowest inhibitions by the *Salmonella* and *E. coli* isolates were 8.05 ± 1.14 mm, 8.13 ± 1.27 at 125 mg/mL, respectively. This study revealed that even though the standard antibiotic exhibited the highest inhibition against the selected bacterial isolates (33.38 ± 2.47 mm for *Salmonella* and 24.58 ± 2.49 mm for *E. coli*), *N. cassia* extract also showed an antibacterial effect signifying the possibility of using it to control *Salmonella* and *E. coli*.

Keywords: Antibacterial, Antibiotic resistant, *E. coli*, *Neolitsea cassia*, *Salmonella*

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