

Title: Hepatoprotective and cardioprotective effect of *Artemisia nilagirica* leaf extract on *E. coli* challenged broiler chicken

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Abstract: *Artemisia nilagirica* is an important medicinal plant found to exhibit several medicinal properties but the use of its leaves for combating *E. coli* infection has not been scientifically validated in poultry. The present study was conducted to evaluate the protective effects of methanol leaf extract of *A. nilagirica* (ANE) on *E. coli* challenged broiler chickens. Three hundred and thirty, day-old broiler chickens, were divided into 6 groups of 55 each, with group EX infected intraperitoneally (I/P) with LD50 dose of 1×10^7 cfu/ml of *E. coli*; group(s) EA1, EA2 and EA3 infected I/P with 1×10^7 cfu/ml of *E. coli* and supplemented with ANE @ 0.5, 1.0 and 2.0 g/L of drinking water, respectively; group AX were only given ANE @ 2.0 g/L in the drinking water. ANE treatment was started from day 4 and was continuously given in the drinking water up to day 21. *E. coli* infection was given to the birds on day 7 of their age. The effect of the plant extract was evaluated on the basis of gross, microscopic and ultrastructural alterations in *E. coli* challenged broiler chickens. The extract of *A. nilagirica* was found to show antibacterial, cardioprotective and hepatoprotective properties in a dose-dependent manner on the basis of gross and microscopic examination. The methanol extract of *A. nilagirica* leaves revealed no toxic effect on the hepatocytes on ultrastructural evaluation. This study demonstrates the antimicrobial, hepatoprotective and cardioprotective activities of ANE in broiler chickens infected with *E. coli* organism.

Keywords: *Artemisia nilagirica*, Broiler chicken, Colibacillosis, *Escherichia coli*, Pathology

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