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Efficacy of *Echinacea purpurea* and Protexin on immune response (IgA, IgG and HI) to Newcastle disease virus vaccination (VG/GA strain) in turkey poults

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The aim of this study was to evaluate the effect of *Echinacea purpurea* and probiotic (Protexin) in turkey poults on systemic immune response against Newcastle disease virus (NDV) following vaccination. A total number of 288, day old male turkey poults (premium) were obtained from Zarin Jooje Company (local company). Poults were divided into 6 groups with 4 replicates. Groups were followed: Birds received ND vaccine and water treated with 1 per 1000 liter of *Echinacea purpurea* (T1), birds received ND vaccine and water treated with 1 kg per 1000 liter of probiotic (T2), positive control or poults were vaccinated against NDV without additives (T3), water supplemented with 1 kg per 1000 liter *Echinacea purpurea* without vaccination (T4), water supplemented with 1 kg per 1000 liter probiotic without vaccination (T5) and negative control group, neither vaccinated against NDV nor given additives (T6). At the age of 10 and 20 days all poults were vaccinated with VG/GA strain ND vaccine by eye dropper according to the recommendation of the manufacturer. For systemic and mucosal antibody analyses, blood samples were collected and the titers of antibody against NDV were measured by ELISA and HI tests. The addition of *Echinacea purpurea* to water (T3) ameliorated the systemic IgG, IgA and HI antibody production as compared to the positive control; however, it was not significant for all time. Protexin supplementation of the water (T4) increased ($p < 0.01$) IgG and HI antibody production against NDV compared to the positive control, only at 28 day of age. However, an increase ($p < 0.01$) in systemic IgA antibody titers against NDV was observed compared to the positive control at 20 and 28 days of age. The birds supplemented with EP (T3) had higher specific and total mucosal IgA antibody levels than positive control birds, but it was not significant (except for total tracheal IgA at 23 day). First scientific evidence on the application of the EP and the Protexin in turkeys supports an improvement of systemic and mucosal immunity.

Biography

Tohid Tolouei is currently a PhD student in Department of Poultry Diseases, Faculty of Veterinary Medicine, University of Tehran, Iran.

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