**EFFECT OF *IN-OVO* INJECTION OF GLUCOSE, LYSINE AND THREONINE ON THE PRODUCTION PERFORMANCE, JEJUNAL HISTOMORPHOLOGY AND MUC- 2 GENE EXPRESSION OF COMMERCIAL BROILER CHICKEN**

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**Background**

Under field conditions, most of the broiler chicks subjected to fasting and receive feed and water 24-36 hours after hatching, which results in mobilization of body reserves to support metabolism, thermo regulation which impairs overall production performance.

**Objective**

To investigate the effect of *in-ovo* injection of glucose, lysine and threonine on the production performance, jejunal histomorphology and muc- 2 gene expression of commercial broiler chicken

**Methodology**

On 18th day of incubation, out of 500 eggs, 100 eggs served as non injected control (T1), the remaining 400 eggs (100 for each treatment group) were injected with 0.5 ml of normal saline, (T2) 0.5 ml of 5 % glucose (T3), 0.5 ml of 0.5 mg Lysine (T4), and 0.5 ml of 0.5 mg Threonine (T5). After completion of *in ovo* injection, all eggs were incubated till 21 days. The hatch was taken on day 21. The hatched out broiler chicks from (400 numbers) were randomly allotted into 5 treatment groups each with four replicates of 20 chicks each. The chicks were fed *ad libitum* with broiler pre-starter, starter and finisher mash as per BIS (2007) specifications from 1-10, 11-21 and 22-42 days of age respectively. Data on hatchability, hatch weight, body weight, weight gain, feed consumption, FCR and liver glycogen, serum glucose, total protein, jejunal muc-2 expression and histomorphometry of the small intestine were recorded and analysed statistically.

**Results**

Results revealed that *in ovo* injection of glucose, lysine and threonine significantly (P<0.05) increased hatchability, chick weight, body weight, and liver glycogen, serum total protein. Cumulative feed consumption and FCR were also significantly (P<0.01) improved. *In ovo* feeding significantly (P<0.05) increased the jejuna villi height, width and crypt depth compared to the control. The mRNA expression of muc-2 gene was significantly upregulated in all in *ovo* injected birds compared to control.

**Conclusion**

*In ovo* injection of glucose, lysine and threonine on 18th of incubation improved the hatchability, body weight, FCR, livability, jejunal histomorphometry, muc-2 gene expression and net profit in broilers.

**Key words:** *In ovo* feeding, broiler chicken, growth performance, histomorphometry