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**Title : Study on the effect of acidifier (Na butyrate) on *Salmonella* Enteritidis induced infection in broiler**

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**Abstract**

The present trial aimed to investigate the effects of using sodium butyrate encapsulated in palm fat in comparison with antibiotic of experimentally infected (SE) broiler chickens for a period of 35 days. The measured parameters were disease picture, zootechnical performance, and intestinal colonization, morphological characterization of (SE) using electron-microscopy and PCR as well as detection of gut integrity histomorphometrically. A total of 250, day-old chicks were randomly allotted into 5 equal groups (1-5); consisting of 50 birds each. Chickens of group 1 were kept as blank control. Chickens of groups 2 and 3 were treated with sodium butyrate from day old till end of study in doses of 1, 0.5 and 0.25 K/ton of feed in the starter, grower and finisher ration; respectively. Birds in group 4, at the 3rd day of age, were treated with enrofloxacin 20% (10 mg/kg body weight) as (0.25 ml/liter) continuously for 5 successive days. At the 2nd day of age; each bird of groups 3, 4 and 5 were orally challenged by a dose of 0.3 ml of 5 X 108 CFU/ml of (SE). Performance parameters were measured weekly. Liver and caecum were collected from challenged groups at 7 and 19 days of age for re-isolation and enumeration of (SE). Jejunum was taken at 35 days of age for histomorphometry. In conclusion; the used microencapsulated sodium butyrate showed no adverse effect on body weight, body weight gain and feed conversion rate, had a bactericidal action against (SE), altered organism morphology and modulated some of its virulence genes and also played a positive role in the development of intestinal epithelial cells.