

# Probiotic Activity of *L. acidophilus* against Major Food-borne Pathogens Isolated from Broiler Carcasses.

Sherein\* I. Abd El-Moez 1 , Ahmed F.Y. 2 , Samy A.A. 1 , Aisha R.Ali 3

. Department of Microbiology and Immunology - National Research Center Cairo Egypt. 2. Department of Animal Reproduction and A.I. - National Research Center Cairo Egypt. 3. Serology unit -Animal Health Institute Cairo Egypt \*shereinabdelmoez@yahoo.com, yfahmed54@yahoo.com, Ayman\_Samy@hotmail.com

### Abstract :

*C.jejuni*, *E.coli* and *S. typhimurium* are the principal food borne pathogens in poultry industry. The first

experiment tested the effectiveness of different strains of *Lactobacillus* as in vitro as probiotic against *C. jejuni*, *E.coli* O157 and *S. typhimurium* Result showed that *L.acidophilus* isolated from colostrums of mare and goat showed the widest inhibition zone against *C. jejuni*, *E.coli* O157 and *S. typhimurium* strains compared to the use of *L.acidophilus* isolated from goat and cattle milk. The second experiment evaluate the efficiency of *L. acidophilus* isolated from mare colostrums showing highest in vitro inhibition activity against tested strains as in vivo probiotic against *C. jejuni* isolated from broiler carcasses. The result showed great inhibition of *C. jejuni*, *E.coli* O157 and *S. typhimurium* strains by the use of *L.acidophilus* in comparing to the use of antibiotics. In the second experiment; four groups of adult albino rats were used; group (1) control negative, group (2) rats orally administrated by *L. acidophilus* only from the start of experiment till the 14thday, group (3) rats challenged only

with *C. jejuni* and group (4) orally administrated by *L. acidophilus* from the start of experiment till the 14thday at the 7thday they were challenged with *C. jejuni*. Result showed that the third group showed the highest rate of reisolation of *C.jejuni* ( $0.80\pm 0.16$  from fecal swabs and  $0.84\pm 0.17$  from the internal organs) as well as major pathological lesions in the tested organs in the form of granulomatus reaction in the lung tissue infiltration of inflammatory cells in the lung tissue thickening of wall of blood vessels with alveolar emphysema. Congestion hemorrhages of renal blood capillaries and coagulative necrosis of the renal tissue as well as degeneration and necrosis of hepatocytes with proliferation of fibrous tissue. The fourth group pretreated with *L. acidophilus* Showed lower rate of isolation of *C.jejuni* ( $0.08\pm 0.02$  from fecal swabs and  $0.04\pm 0.01$  from internal organs). The pathological

findings of the internal organs showed minor lesions in the form of interstitial pneumonia and inflammatory cellular

infiltration in the lung Swelling and degeneration of renal epithelium and hepatocytic degeneration with infiltration

of inflammatory cells. The second group which was only treated with *L.acidophilus* showed no reisolation of

*C.jejuni* as well as no pathological lesions were detected except a minor lesion in the liver in the form of diffused

vacuolar degeneration in hepatocytes. Results develop a safe method for competing food borne pathogens in edible

animals and suggest the need for probiotics to hinder the spread of highly pathogenic zoonotic bacteria transmitted

by animal food by products. [Nature and Science 2010; 8(3):69-78]. (ISSN: 1545-0740).

### Key Word :

*C. jejuni*; *L. acidophilus*; probiotics; in vivo, antibiotic sensitivity, rat.