



**Cairo University**  
**Faculty of Veterinary Medicine**



# **Broiler Intestinal Immunomodulatory Effect by Probiotic**

A Thesis presented by

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(B.V.Sc., Cairo University, 2014)

**For the degree of Master  
In Veterinary Medical Science,  
Microbiology**

Under the Supervision of

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**Cairo University**  
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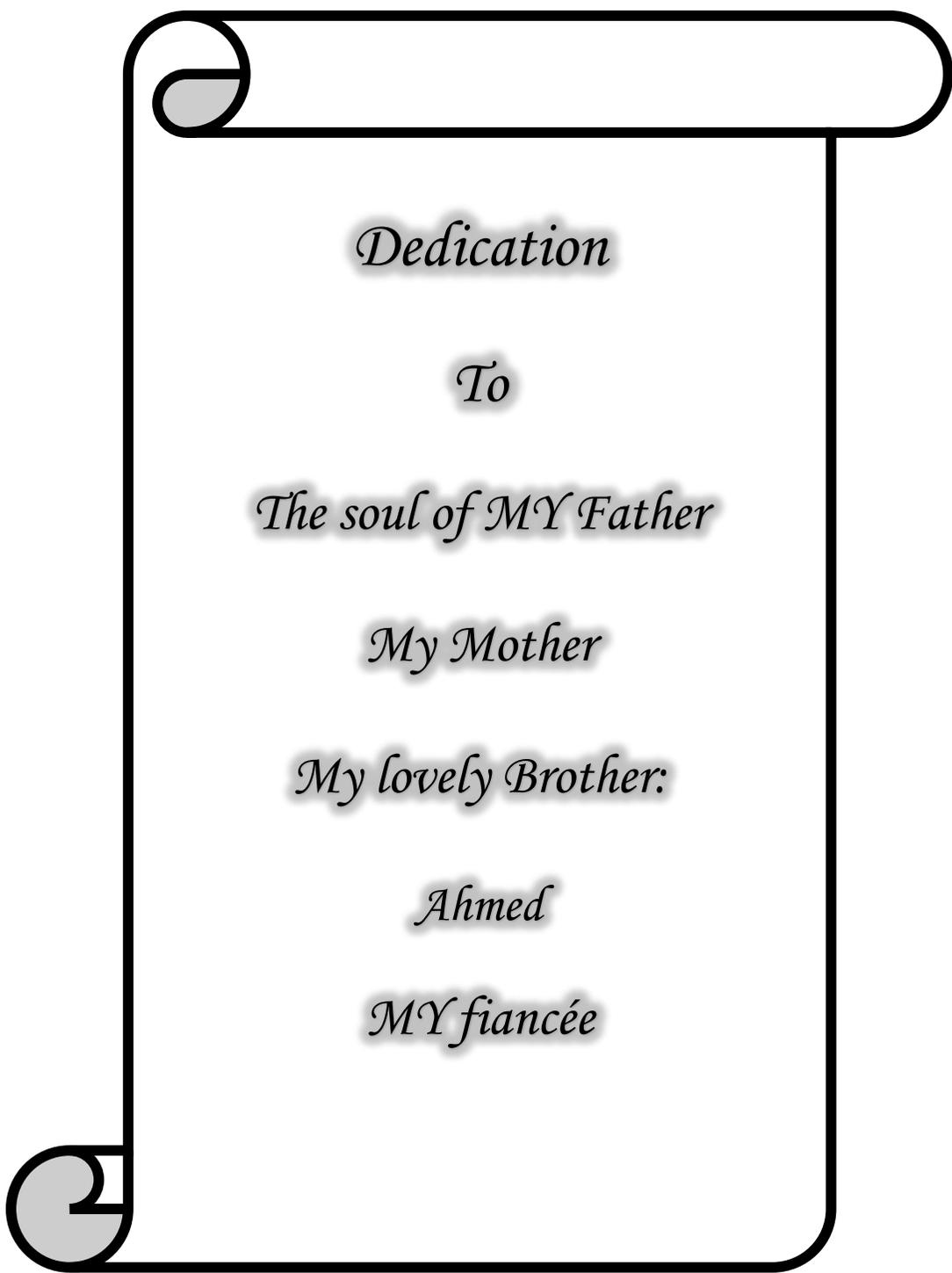
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## **Abstract:**

Regarding to the importance of protect the broiler chicks during the first period of life when their immune system still immature by improving of their immunity and also to improve the performance and their general health. The addition of antibiotic growth performance was used to improve the bird health and immunity. But because the incidence of antibiotic resistance which transferred to human through the meat, the use of AGP was banned. The importance of finding an alternatives to AGP became a necessary . Probiotics is one of this alternatives which improve the host immunity and health .From this point of view , the aim of the present study is investigate the effect of different probiotics on host immunity and determine the best one to used and the way in which it work . Therefore, the trail was conducted by 60 bird in each group of control fed on basal diet only. Meanwhile, broilers in experimental groups received *Bacillus subtilis*  $10^{10}$  CFU /g and *Saccharomyces cerevisiae*  $10^9$  CFU /g in addition to the basal diet for 42 d. The results of the study revealed that probiotics could modulate intestinal population .It was a significant increase in *Lactobacillus* population count in *Saccharomyces* , *Bacillus* and control group respectively .In addition to marked significant inhibition in *E.coli* and *Salmonella* count in the same groups respectively .Meanwhile, the modulation in intestinal beneficial bacteria aid in stimulation of SIgA secretion .SC group showed the best level of SIgA and serum IgA followed by BS group and C group .There was a decline in immunoglobulin in control group but it was delayed in treated group . Probiotics modulate different cytokines which stimulate the immune response . SC group showed an up regulated level of IFN- $\gamma$  and IL-12 at the starter phase only but showed an up regulated level of IL-4 , IL-10 and TGF- $\beta$  all over the experimental period . This expression was higher in SC then BS and C group but IFN- $\gamma$  was down regulated in BS group at 14 day . Moreover, probiotic stimulate innate immunity through marked increase in

NO level in SC followed by BS and C group .Bursa weight increased in treated group but there was no change in spleen weight . There was an a obvious improvement in all performance parameter in treated beside a low mortality rate was recorded in SC 1.67% , BS 3.33% and C 8.3%.

It was concluded that the addition of *Saccharomyces cerevisiae* by the mentioned dose and concentration was effective in improving the host immune response and also the general health and achieve the economic profit so it considered the probiotic of choice.



*Dedication*

*To*

*The soul of MY Father*

*My Mother*

*My lovely Brother:*

*Ahmed*

*MY fiancée*



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