A-MAX CONCENTRATE TRIAL IN POULTRY BROILER DIETS

Dr. Alimul Islam, Department of Microbiology, Bangladesh Agricultural University, Bangladesh

Introduction: The poultry industry is a major agri-business sector in Bangladesh. Disease and feed quality are the main constraints of poultry producers here. A great deal of attention has been received from nutritionists and health care experts for proper utilization of nutrients and the use of prebiotics for growth promotion of poultry.

Objective: To determine the effect of supplementing a prebiotic, A-MAX™ Concentrate, on performance, carcass yield and intestinal micorflora in Broiler diets.

Materials & Methods: Zero day old Ross 308 chicks were randomly assigned to four treatments with 20 birds/ treatment.

A) Vaccinated birds receiving A-MAX Concentrate
B) Non-vaccinated birds receiving A-MAX Concentrate
C) Vaccinated birds receiving control diet
D) Non-vaccinated birds receiving control diet

A-MAX Concentrate was supplemented at 2 kg/ton of complete feed to groups A and B. Chicks were fed standard broiler starter diet from 0-14 days and grower diet from 15-32 days. Groups A and C were vaccinated intraocularly with Newcastle disease (Bangla BCRDV). Performance was evaluated by measuring body weight, carcass yield and feed conversion ratio (FCR). Intestinal health was studied by enumerating total bacteria, *Lactobacillus spp*., and Coliforms from the crop and the cecum. Data was analyzed using SPSS® v.10 for Windows®.

Results: Overall, similar results were obtained in treatments with vaccinated and non-vaccinated birds. Therefore, the discussion presented here is on the effect of A-MAX Concentrate. Birds on A-MAX Concentrate weighed consistently more during the entire trial and were 425 g heavier ($p<0.01$) in weight at the end of the trial compared to birds on control diet (Table 1 and Fig. 1). Similarly, carcass, leg and breast yield were also significantly ($p<0.01$) higher. Feed conversion ratio was improved significantly ($p<0.01$) in A-MAX Concentrate supplemented birds compared to control birds (Fig 02).

Microbiological examination of the crop and cecum revealed significantly ($p<0.01$) higher total *Lactobacillus* population and significantly ($p<0.01$) lower total Coliforms population at all times in birds supplemented with A-MAX Concentrate compared to control (Table 2 & 3). Total viable cell count was not significantly affected between treatments. Frequency distribution of the types of bacterial flora isolated from crop and cecum indicate that from all the viable cells recovered from birds receiving A-MAX Concentrate, 83% were *Lactobacillus spp.* and only 3% were *E. coli*. Conversely, birds receiving control diet had only 19% *Lactobacillus spp.* and 26% *E. coli.* A detailed frequency distribution of the isolated bacterial flora is seen in Fig 3 & 4.

Conclusions: Supplementation of A-MAX Concentrate in Broiler diets improved performance in terms of weight gain, higher carcass yields and improved feed conversion. A-MAX Concentrate supported the colonization of beneficial gut bacteria like *Lactobacillus* and prevented pathogenic bacteria from colonization thereby, improving the intestinal health of the birds.

Fig. 1: Bird Weight

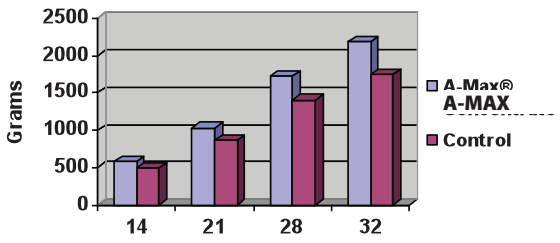
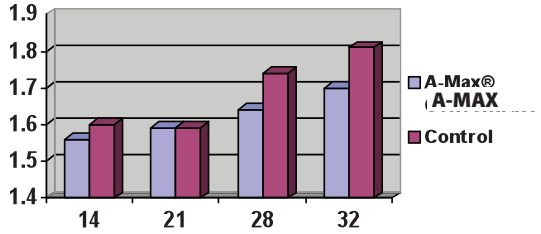


Fig. 2: Feed/Gain



Research Bulletin P-58

A-MAX CONCENTRATE TRIAL IN POULTRY BROILER DIETS

Table 1: Weight Gain, Feed Conversion, and Carcass Yield

Treatment Name			A: + Vaccine + A-MAX™	B: No Vaccine +A-MAX	C: + Vaccine, No A-MAX	D: No Vaccine, No A-MAX
Parameter	Age	Units				
Bird Weight	Day 7	Grams	192	200	181	190
Bird Weight	Day 14	Grams	550[a]	600[a]	480[b]	501[b]
Bird Weight	Day 21	Grams	990[a]	1071[a]	841[b]	891[b]
Bird Weight	Day 28	Grams	1700[a]	1750[a]	1391[b]	1420[b]
Bird Weight	Day 32	Grams	2160[a]	2200[a]	1736[b]	1751[b]
Feed/Gain	Day 32		1.70[a]	1.69[a]	1.82[b]	1.81[b]
Carcass Weight	Day 32	Grams	1651[a]	1671[a]	1276[b]	1311[b]
Breast Weight	Day 32	Grams	550[a]	557[a]	400[b]	430[b]
Leg Weight	Day 32	Grams	510[a]	530[a]	385[b]	400[b]

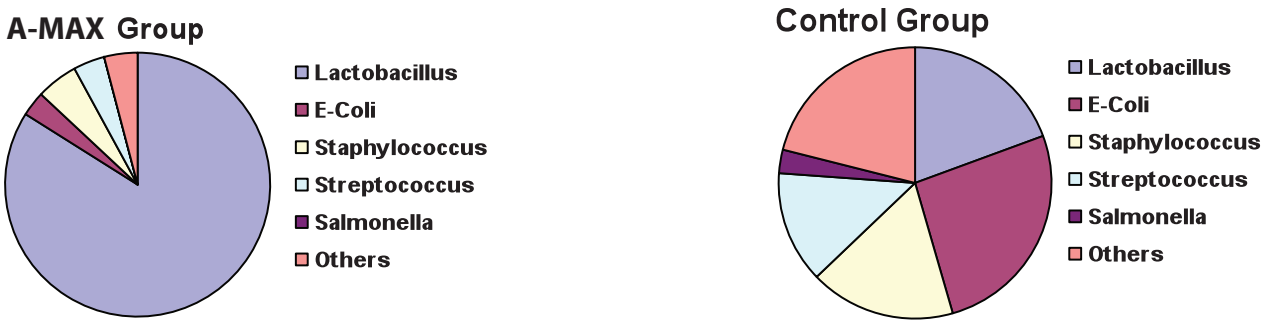
Table 2: Microflora of CROP. All numbers expressed in Logarithms counts.

Treatment Name		A: + Vaccine + A-MAX	B: No Vaccine +A-MAX	C: + Vaccine, No A-MAX	D: No Vaccine, No A-MAX
Total Viable Count	Day 14	7.40	7.58	8.14	8.24
Total Viable Count	Day 32	6.98	6.62	8.16	8.14
Total Lactobacillus Count	Day 14	6.98[a]	7.14[a]	3.10[b]	3.40[b]
Total Lactobacillus Count	Day 32	6.89[a]	6.50[a]	3.54[b]	3.44[b]
Total Coliform Count	Day 14	3.48[a]	3.24[a]	5.28[b]	5.62[b]
Total Coliform Count	Day 32	3.48[a]	3.42[a]	5.32[b]	5.48[b]

Table 3: Microflora of CECUM. All numbers expressed in Logarithms counts.

Treatment Name		A: + Vaccine + A-MAX	B: No Vaccine +A-MAX	C: + Vaccine, No A-MAX	D: No Vaccine, No A-MAX
Total Viable Count	Day 14	6.96	7.28	8.04	8.14
Total Viable Count	Day 32	6.36	6.74	8.22	8.12
Total Lactobacillus Count	Day 14	6.72[a]	6.98[a]	3.14[b]	3.26[b]
Total Lactobacillus Count	Day 32	6.32[a]	6.68[a]	3.44[b]	3.42[b]
Total Coliform Count	Day 14	3.34[a]	3.18[a]	5.12[b]	5.42[b]
Total Coliform Count	Day 32	3.44[a]	3.36[a]	5.18[b]	5.28[b]

Figures 3 and 4: Microflora frequency distribution of crop and cecum



Animal Nutrition

To learn more contact your nutritionist, veterinarian or Arm & Hammer Animal Nutrition representative.