

XTRACT® 6930 improves gut morphology and optimizes performance and carcass quality of broilers

INTRODUCTION AND OBJECTIVES

Meta analytical tools demonstrated that XTRACT® 6930 improved performance of broilers at the same level as antibiotics used as growth promoters. In addition, previous data show that XTRACT® 6930 also enhances carcass quality of broilers. These benefits are linked to the positive effect of XTRACT® 6930 on gut function (digestion, immunity, gut structure, gut microbiota ...). However, very few studies show the impact of the product on the intestine, productive performance and carcass parameters within one single trial. Therefore the objective of this trial was to evaluate the effect of XTRACT® 6930 (a standardized combination of 3% cinnamaldehyde, 5% carvacrol and 2% capsicum oleoresin) on gut morphology, performance and carcass quality of broilers.

MATERIAL AND METHODS

General conditions:

- Performed in the facilities of the Faculty of Veterinary Medicine, in Cairo, Egypt,
- 600 day old Arbor Acres + broilers (initial body weight: 46.4 g),
- Housed for 35 days in 20 floor pens of 30 birds each,
- Corn soybean meal commercial diet fed *ad libitum*, in 2 phases:
 - Starter (2 weeks): 23% CP, 3000 kcal/kg → Finisher (3 weeks): 19% CP, 3200 kcal/kg
- Diclazuril given via drinking water as a coccidiostat and vaccinated against:



Treatments (10 pens per treatment):

- Control: basal diet, void of antibiotics or alternatives,
- XTRACT®: basal diet + 100 g/t XTRACT® 6930, code 6930;

Measurements:

- Performance: weekly feed intake (FI), body weight (BW), body weight gain (BWG), feed conversion ratio (FCR), survival rate; european performance efficiency factor (EPEF) with:

$$EPEF = (final\ BW \times Survival\ rate) / (Slaughter\ age \times FCR)$$
- Carcass quality: meat %, breast meat %, abdominal fat %,
 - Intestinal morphology: intestinal length, intestinal diameter;

Statistical analysis:

- ANOVA and comparison with multiple Duncan's test.

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RESULTS AND CONCLUSION

Effect of XTRACT® on gut morphology

Under the microscope, birds fed XTRACT® exhibited an improved intestinal structure compared to unsupplemented broilers. This was confirmed through a beneficial effect of XTRACT® on intestinal length and diameter (respectively: $P = 0.09$ and $P < 0.01$; Figure 1).

XTRACT® effect on animal performance

Feed intake was not affected by the treatments. However, XTRACT® progressively improved average daily gain which lead to a greater final body weight (Figure 2 and 3: +5.4%, $P < 0.01$). Consequently, the group supplemented with XTRACT® exhibited an optimized feed conversion ratio (-3.9%, $P < 0.01$). Survival rate was also slightly higher for bird fed XTRACT® (97% vs. 96.33, $P > 0.05$). Taking into account these enhancements, XTRACT® group resulted in a higher EPEF (+ 10.4 %, $P < 0.05$).

XTRACT® effect on carcass quality

In addition to the greater final body weight, XTRACT® significantly improved breast meat percentage (+8.3%) and carcass meat percentage (+5.4%).

Though XTRACT® improved broiler intestinal structure, giblets percentage was not increased ($P = 0.75$) and abdominal fat was reduced (-22.9%, $P < 0.05$).

Figure 1: effect of the treatments on gut structure

PARAMETER	Control	XTRACT®	P-Value
Intestinal length (cm)	185.5	191.9	0.095
Intestinal diameter (cm)	0.90	1.06	< 0.01

Figure 2: evolution of weekly weight gain

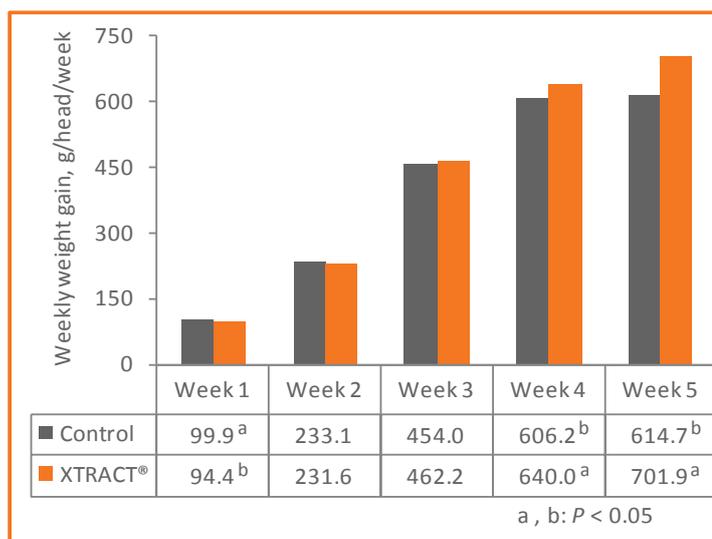


Figure 3: effect of the treatments on broiler performance and carcass quality

PARAMETER	Control	XTRACT®	P-Value
BW d35, in g	2064.1	2175.4	<0.01
ADG, in g/d	57.62	60.83	<0.01
ADFI, in g/d	95.95	97.26	NS
FCR, in g/g	1.627	1.563	< 0.01
EPEF	349.32	385.67	0.02
Breast meat, in %	17.40	18.84	0.01
Carcass meat, in %	31.65	33.35	0.03
Abdominal fat, in %	1.45	1.18	0.01
Giblets, in %	4.58	4.62	0.75

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