



# EFFECTS OF WATER SUPPLEMENTATION WITH SEVERAL HERBAL EXTRACTS ON GROWTH PERFORMANCE, LIVER WEIGHT AND COLOR, AND SOME BIOCHEMICAL PARAMETERS OF BROILERS UNDER HOT CLIMATE

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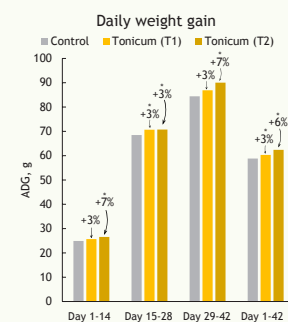
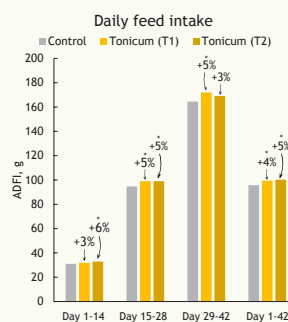
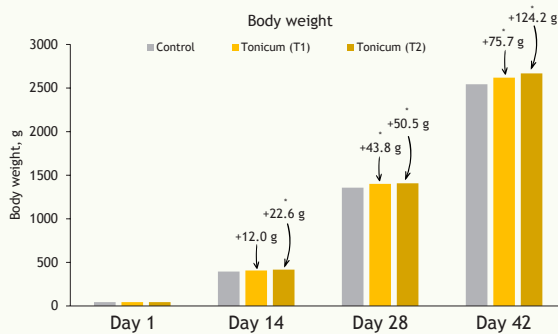
## Introduction

- Reduction of liver metabolism during hot climate condition have a clearly negative effect animal health and performance
- Evaluation of a water supplementation with several herbal extracts and vitamins on the health and performance

## Conclusion

- ✓ Increase of growth performance.
- ✓ Maintenance liver function due to reduction of oxidative stress biomarker, the MDA level.
- ✓ The application of Tonicum would be beneficial

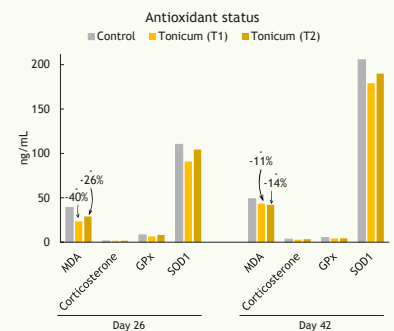
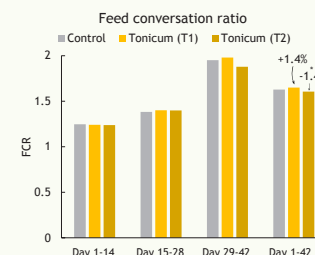
## Results



\*significant difference at 5% level

Age, d	Control	Tonicum 1	Tonicum 2
Liver weight, %	1.6	1.6	1.4
Liver color			
a	14.6 <sup>ab</sup>	14.3 <sup>ab</sup>	15.6 <sup>a</sup>
b	9.2 <sup>a</sup>	7.3 <sup>b</sup>	7.9 <sup>ab</sup>
L	35.1 <sup>a</sup>	33.8 <sup>b</sup>	33.9 <sup>ab</sup>

Columns with unlike superscripts differ significantly from each other (Turkey's test, p < 0.05).



## Material & Methods

### Animal trial

- Animal: Ross 308 (900 one day old chicks)
- Open-sided house, temperature (28 - 31°C in dry season)

### Measurement

- Growth performance data
- Liver weight and color
- Health status biomaker

### Statistic

- GLM procedure and post-hoc Turkey's test (SAS Inst. Inc., Cary, NC)

### Experimental design

