Effect of phytobiotic blends on growth performances and digestive microbiota of broiler chickens in two rearing densities

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Objectives

Investigating the effect of **phytobiotics** (PHY) on the **growth performances** and digestive **microbiota** of **chicken** according to **stocking densities**

Materials & Methods

Animals : PM3 Ross broilers chickens

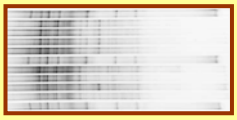
Housing conditions : 3 m² floor pens / 6 repeats per treatment

Stocking density : (EU 2010) 12 birds/m² ("normal" density) 17 birds/m² ("high" density)

Dietary treatments : **Control:** Basal diet **Exp1:** PHYa d22-39; **Exp2:** PHYb d1-10 and PHYa d10-39

PHYa : anti-bacterial properties PHYb : anti-oxydative properties

Microflora analysis : TTGE (*all bacteria* primers)

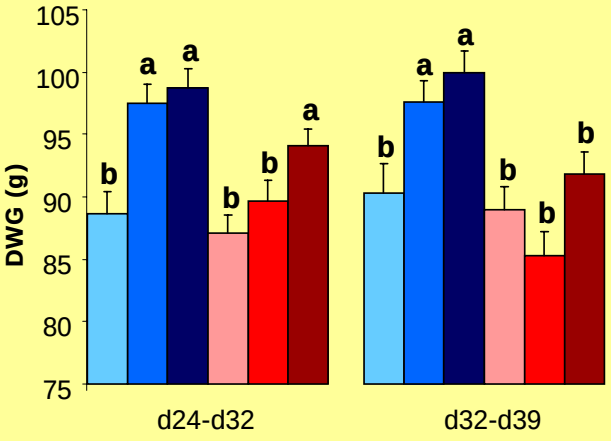


Samples : Digestive content (crop, ileum, caeca) of d22 and d42 birds

Data analysis : Analysis of similarity based on Pearson distance matrix

Results

Daily Weight Gain (DWG) d24-d39



	d24-d32	d32-d39
Treatment (T)	<0.001	<0.0001
Density (D)	<0.0001	<0.01
T x D	NS	0.01

at normal density n=66 and at high density n=94

Normal Density Control, Exp1, Exp2 **High Density** Control, Exp1, Exp2

Impact of dietary treatments on degree of proximity (R) of TTGE profiles

Comparisons are significant for p<0.05

		Normal density		High density	
		Exp1 vs control	Exp2 vs control	Exp1 vs control	Exp2 vs control
d22	Crop	-	NS	-	NS
	Ileum	-	NS	-	NS
	Caeca	-	NS	-	0.257
d42	Crop	**NS**	**0.615**	NS	NS
	Ileum	NS	NS	**0.552**	**1.000**
	Caeca	**0.677**	**0.750**	**0.917**	**0.896**

R>0.75 well-separated groups

0.50<R<0.75 separated but overlapping groups

0.25<R<0.50 separated but strongly overlapping groups

Conclusions

Normal density

Exp1 and Exp2 improved d24 to d32 and d32 to d39 DWG

And lead to a modification of microbiota at d42

High density

Exp1 lead to a modification of microbiota at d42 but didn't improve DWG

Exp2 improved d24 to d32 DWG and lead to a modification of microbiota at d22 and d42

Changes in microbiota is not parallel with modifications of growth performances, microbiota isn't the one and only factor involved in the growth promoting effect of these phytobiotics

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