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Sarah S. Guardia, F. Recoquillay, Herve H. Juin, Michel Lessire, Maryse Leconte, Patricia Rideaud, Carole C. Moreau-Vauzelle, Christele Dupont, J.F. Guillot, Irène Gabriel

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

Guardia S.<sup>1</sup>, Recoquilly F.<sup>2</sup>, Juin H.<sup>3</sup>, Lessire M.<sup>1</sup>, Leconte M.<sup>1</sup>, Rideaud P.<sup>3</sup>, Moreau-Vauzelle C.<sup>3</sup>, Dupont C.<sup>3</sup>, Guillot J. F.<sup>4</sup>, Gabriel I.<sup>1</sup>

<sup>1</sup>INRA - UR 83, URA, 37380 Nouzilly, FRANCE, <sup>2</sup>PHYTOSYNTHESE - Z.I. de Mozac Volvic, 63203 Riom, FRANCE, <sup>3</sup>INRA - UEASM, Le Magneraud, 17700 Surgeres, FRANCE, <sup>4</sup>I.U.T. de Tours- 29, rue du Pont-Volant, 37082 Tours, FRANCE

## 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 m<sup>2</sup> floor pens / 6 repeats per treatment

**Stocking density** : (EU 2010) 12 birds/m<sup>2</sup> ("normal" density) 17 birds/m<sup>2</sup> ("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

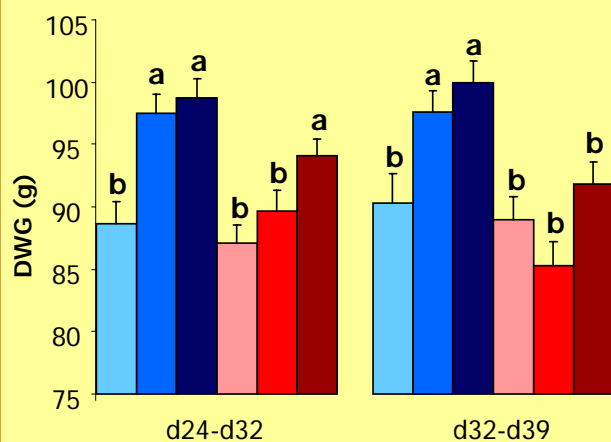
**Microflora analysis** : TTGE (*all bacteria* primers)

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

**Data analysis** : Analysis of similarity based on Pearson distance matrix



## Daily Weight Gain (DWG) d24-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 (light blue)  
Exp1 (medium blue)  
Exp2 (dark blue)

**High Density**  
Control (pink)  
Exp1 (red)  
Exp2 (dark red)

## Results

**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

## Normal density

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

And lead to a modification of microbiota at d42

## Conclusions

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

## High density

**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**