

COMPARISON of the DIGESTIVE MICROBIOTA between two DIVERGENTE LINES of CHICKENS based on apparent METABOLISABLE ENERGY (AMEn)

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Objectives

Genetic selection of chickens on AMEn



Biotope modification :
Physico-chemical parameters,
available substrates

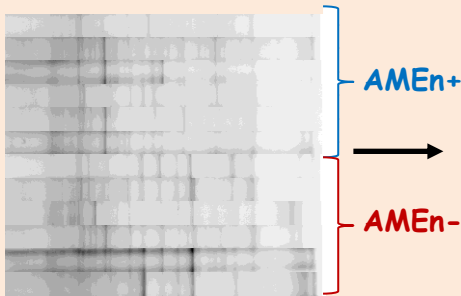


Digestive
microbiota

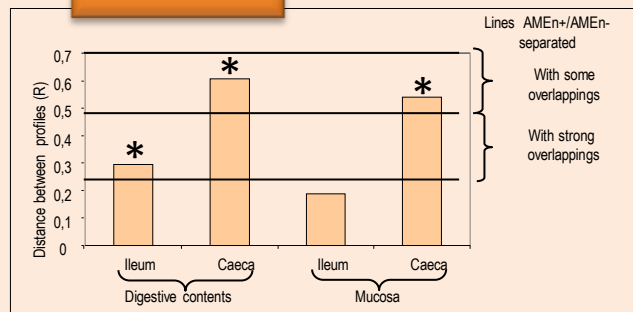
Materials and methods

- **Chickens** : 200 birds from divergent lines selected on AMEn (AMEn+ and AMEn-)
- **Rearing conditions** : on litter (1 - 12 d of age) and in individual cages
- **Diet** : 20.5% proteins and 2 943 kcal/kg, based on wheat of high viscosity (Rialto ; 52.5%);
Coccidiostat : with limited effect on digestive bacteria (Clinacox ®)
- **Digestive samples (23 d)** : digestive contents and mucosa of ileum and caeca
- **Microbiota study**: Molecular fingerprint (temporal temperature gradient gel electrophoresis, TTGE) ; real-time PCR

Results



TTGE profiles of caecal contents of AMEn+ and AME- chickens

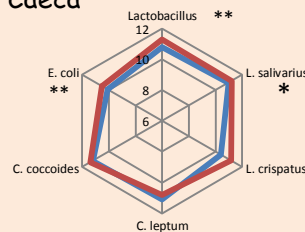
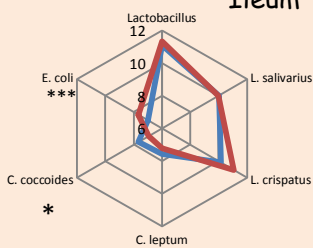


Distance between profiles (ANOSIM) showed difference between AMEn+ and AMEn- chickens with only some overlappings in the caeca (contents and mucosa) or with stronger overlappings for ileal contents

Real-time PCR quantification (Log number of copies of 16S rDNA)

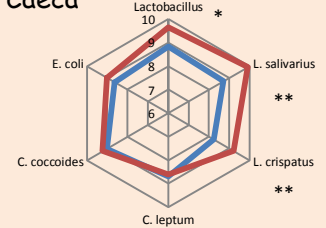
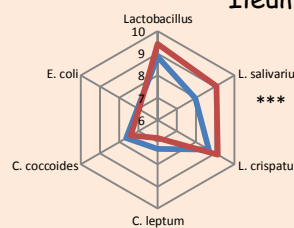
Content (/g of content)

Ileum Caeca



Mucosa (/g digestive segment)

Ileum Caeca



— AMEn+

— AMEn-

* p<0,05; ** p<0,01; *** p<0,001

Conclusion

Genetic selection on AMEn led to a clear change of digestive microbiota