

Effect of *MUC4* and *FUT1* genotypes on piglets naturally infected with Enterotoxigenic *Escherichia coli* F4 and F18.

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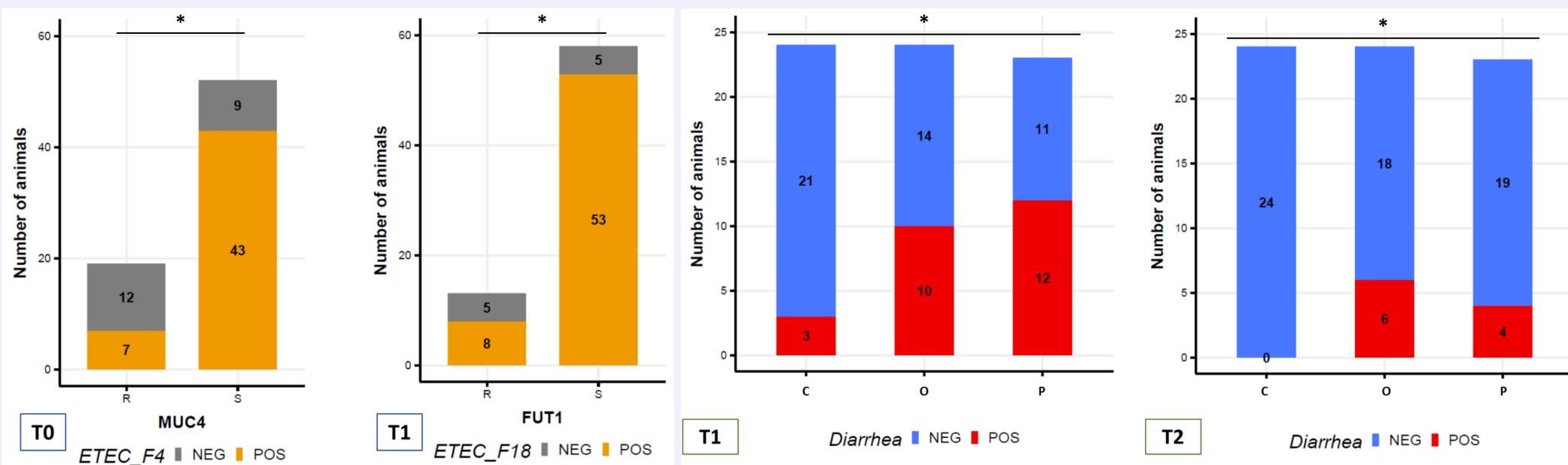
INTRODUCTION

Enterotoxigenic *Escherichia coli* (ETEC) is one of the most important causes of post-weaning diarrhea (PWD) in pigs. The SNPs located on the *Mucine 4* (*MUC4*) and *Fucosyltransferase 1* (*FUT1*) genes have been associated with the susceptibility to ETEC F4 and ETEC F18, respectively. The interplay between the genotypes to ETEC infection and the use of amoxicillin during a natural outbreak of PWD has never been investigated.

AIMS:

- Validate the effects of the genotype of *MUC4* and *FUT1* on ETEC infection
- Evaluate amoxicillin administration by different routes, in piglets naturally infected with multi-resistant ETEC F4 and F18

RESULTS & DISCUSSION



Number of individuals negative (grey) and positive (orange) to ETEC F4 or ETEC F18 in each of the *MUC4* and *FUT1* genotypes identified as resistant (R) and susceptible (S).

Number of individuals negative (blue) and positive (red) to diarrhea status represented in each of the experimental groups (C= control, P= parenteral amoxicillin administration and O= oral amoxicillin administration).

Data showed an association between:

- *MUC4* genotypes and ETEC F4 at T0 ($p=0.003$);
- *FUT1* genotypes and ETEC F18 at T1 ($p=0.01$)

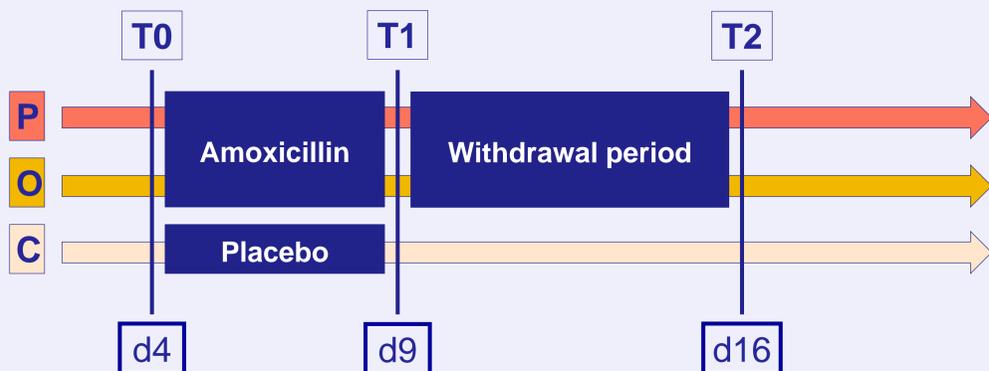
Pigs administered with amoxicillin were at higher risk for diarrhoea when compared to non-treated piglets, at T1 ($p=0.009$) and T2 ($p=0.02$).

Amoxicillin could not exert an anti-bacterial effect on the ETEC strains, since both the ETEC F4 and ETEC F18 were resistant to this antibiotic.

***MUC4* and *FUT1* were confirmed as genetic markers for the susceptibility to ETEC infections in pigs.**

Amoxicillin treatment may produce adverse outcomes on pig health in course of multi-resistant ETEC infection.

MATERIALS & METHODS



Seventy-one piglets were divided into three groups:
P= (23 piglets) parenteral administration of amoxicillin
O= (24 piglets) oral administration of amoxicillin
C= (24 piglets) control administered with placebo

- Sampling:
Feces (ETEC PCR)
Faecal scores
Individual body weight
- Statistical analysis:
Fisher test

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