

Title: INTERACTION BETWEEN INTESTINAL FLORA BACTERIAS

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The intestinal lumen is an ecological site for the bacterial flora.

This flora presents many variations depending on individual, alimentary and stress (1-2) factors. We have studied how is possible to control these variations with drugs (2-3) and also through an administration of others bacterias as Lactobacilli. In this paper we would explain any results in feed conversion after this treatment.

MATERIALS AND METHODS

For each trial 20 piglets of 20 kg are used (12 treated, 8 without in four times, 3 treated and 2 W.O.).

They are transported by car from the piggery (15 km) and placed in metabolism cage during 8 days.

All received the same feed and each morning each piglet received 20 ml of Ringer medium by a seringue with ou W.O. drug during 8 days.

The eighth day the piglets are killed after general anesthesia with Nembutal. Ileal and colic content are cultured at dilution 10^{-1} up to 10^{-7} :

- on GTS (B.-D. Mérieux) (Total flora)
- blood GTS (B.-D. Mérieux)
- D-Coccosel Agar (B.-D. Mérieux) for Enterococcus
- Mac Conkey Agar (B.-D. Mérieux) for E. Coli
- TSN (Trypcase-Sulfite-Néomycine) for Sulfite-Reducers

and the counting is made through a wild lens at 10x, 50x, 100x.

The weight of the animals is enregistered at the beginning and the end of the trial and the intestines are weighted.

Utilised drug is : Lactobacillus plantarum, Streptococcus faecalis, lacti and Streptococcus faecium at the dosis of 2×10^8 de S. faecium, 3×10^6 de L. plantarum, 3×10^6 de S. faecalis.

Before administration, the lyophilized bacteria are mixed with Ringer medium over a night.

RESULTS

	1	2	3	4	5
Treated	0,0017	42,485	236,249	41,083	44,166
Control	0,0036	7,326	270,937	43,125	28,625
	6	7	8	9	10
Treated	8.224,999	0,353	0,464	0,001	0,001
Control	268,75	0,500	0,571	0,001	0,001

1	Lactobacilli in ileon	10^6
2	- in colon	10^6
3	Colibacilli in ileon	10^6
4	- in colon	10^6
5	Enterococcus in ileon	10^4
6	- in colon	10^4
7	Sulfite-Reducers in ileon	10^3
8	- in colon	10^3
9	Non sporulated anaerobies in ileon	10^6
10	- in colon	10^6

	Animal weight (kg)		Intestin weight (kg)	
	Treated	Control	Treated	Control
1 Beginning	22,666	22	2,500	2,550
	22,833	21,250 (10,95 %)	(12 %)	
2 Beginning	24,166	23,500	2,466	2,975
	24,666	22,750 (10 %)	(13,07 %)	
3 Beginning	25,333	25,500	2,683	2,820
	25,666	25	(10,45 %)	(11,28 %)
4 Beginning	24,500	25	2,558	2,840
	24,833	24,500 (10,30 %)	(11,59 %)	

DISCUSSION

In these trials we have not control animals 0 in other words control animals in normal pen. But the animals in normal pen and in metabolism cage have a different alimentary and general behaviour. They could not be compared.

About the weight of the piglets the treatment permit a fall of the loss.

A contrario the intestinal weight is upper in the control.

Is of interest to note the :

- 1) large augmentation of the lactobacilli in the colon
- 2) fall of E. Coli in the ileon and colon
- 3) large augmentation of Enterococcus
- 4) reduction of the sulfite-reducers
- 5) good results of weight

CONCLUSION

In this paper, lactobacilli control the variation and the rise of the E. Coli number after a stress. Lactobacilli have a barrier effect against E. Coli and permit the rise of the Enterococcus which is also an antagonist of the E. Coli.

REFERENCES

- 1) Tournut J., Labie Ch., Redon P., Sarraut O., Badié J., 1969, Colloque de la Société française de Microbiologie, Section antibiotiques, "Antibiotiques et flore intestinale animale et humaine", Cahiers de Méd. Vét. n° 6, Special, 4 décembre.
- 2) Tournut J., Redon P., Montlaur-Ferradou P., Congrès International de Médecine Vétérinaire porcine 1979, Maladies du Porc, p. 20, Moscou
- 3) Tournut J., Redon P., Montlaur-Ferradou P., Technical aid Madame S. Bonheure, Proceedings, 1980 International Pig Veterinary Society Congress, June 30-July 3, in Copenhagen, Denmark, Intestinal flora and aggression. Control., p. 350