

Response of the intestinal mucosal barrier of carp (*Cyprinus carpio*) to a bacterial challenge by *Aeromonas hydrophila* intubation after feeding with-1,3/1,6-glucan

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Title	Response of the intestinal mucosal barrier of carp (<i>Cyprinus carpio</i>) to a bacterial challenge by <i>Aeromonas hydrophila</i> intubation after feeding with-1,3/1,6-glucan
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Abstract	The effect of dietary -glucan on the bacterial community in the gut of common carp (<i>Cyprinus carpio</i>) was examined after oral application of <i>Aeromonas hydrophila</i> . Carp received either feed supplemented with 1% MacroGard((R)), a -1,3/1,6-glucan, or a -glucan-free diet. Fourteen days after feeding, half of the carp from each group were intubated with 10(9) colony-forming units (CFU) of a pathogenic strain of <i>A. hydrophila</i> . Gut samples were taken 12hr to 7days after application and analysed using microbiological and molecular biological techniques (NGS, RT-PCR-DGGE). The reaction of the mucosa and the microbiota to an <i>A. hydrophila</i> intubation differed in carp fed with -glucan compared to carp from the control group. In -glucan fed carp, the total bacterial amount was lower but the number of bacterial species was higher. Bacterial composition was different for carp from both treatment groups. The number of mucin filled goblet cells was reduced in carp fed the -glucan diet. Mucus was obviously released from the goblet cells and was probably washed out of the gut together with high numbers of bacteria. This might be protective against pathogenic bacteria and, therefore, feeding with -glucan may provide protection against infections of the gut in carp.
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