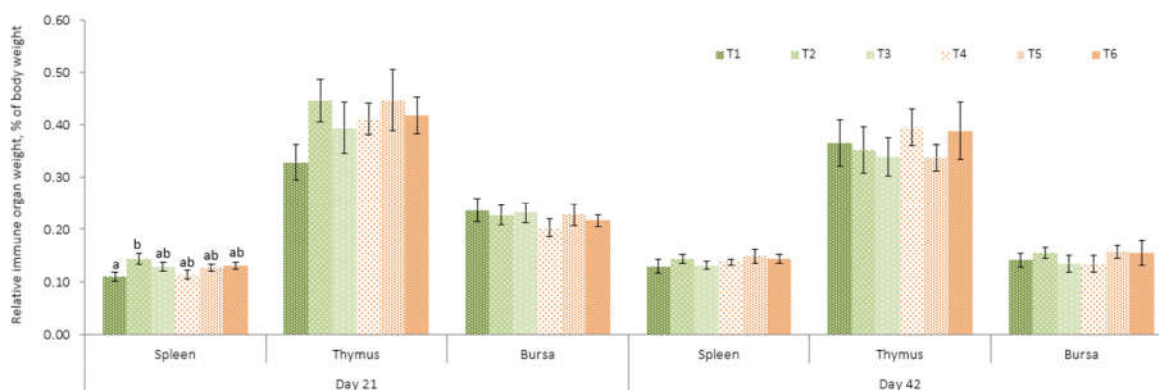
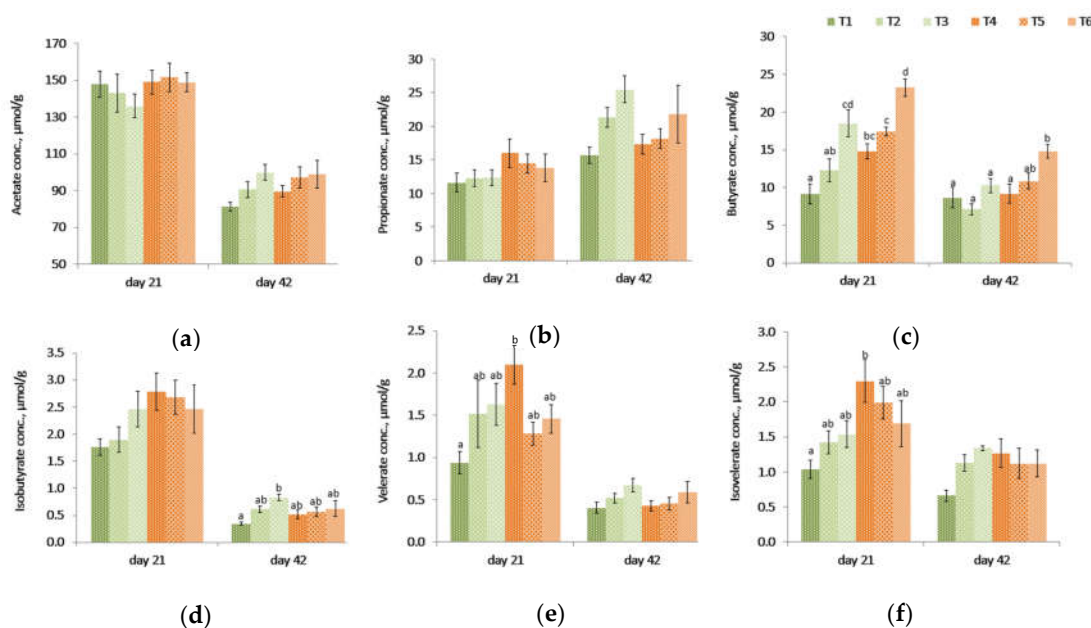


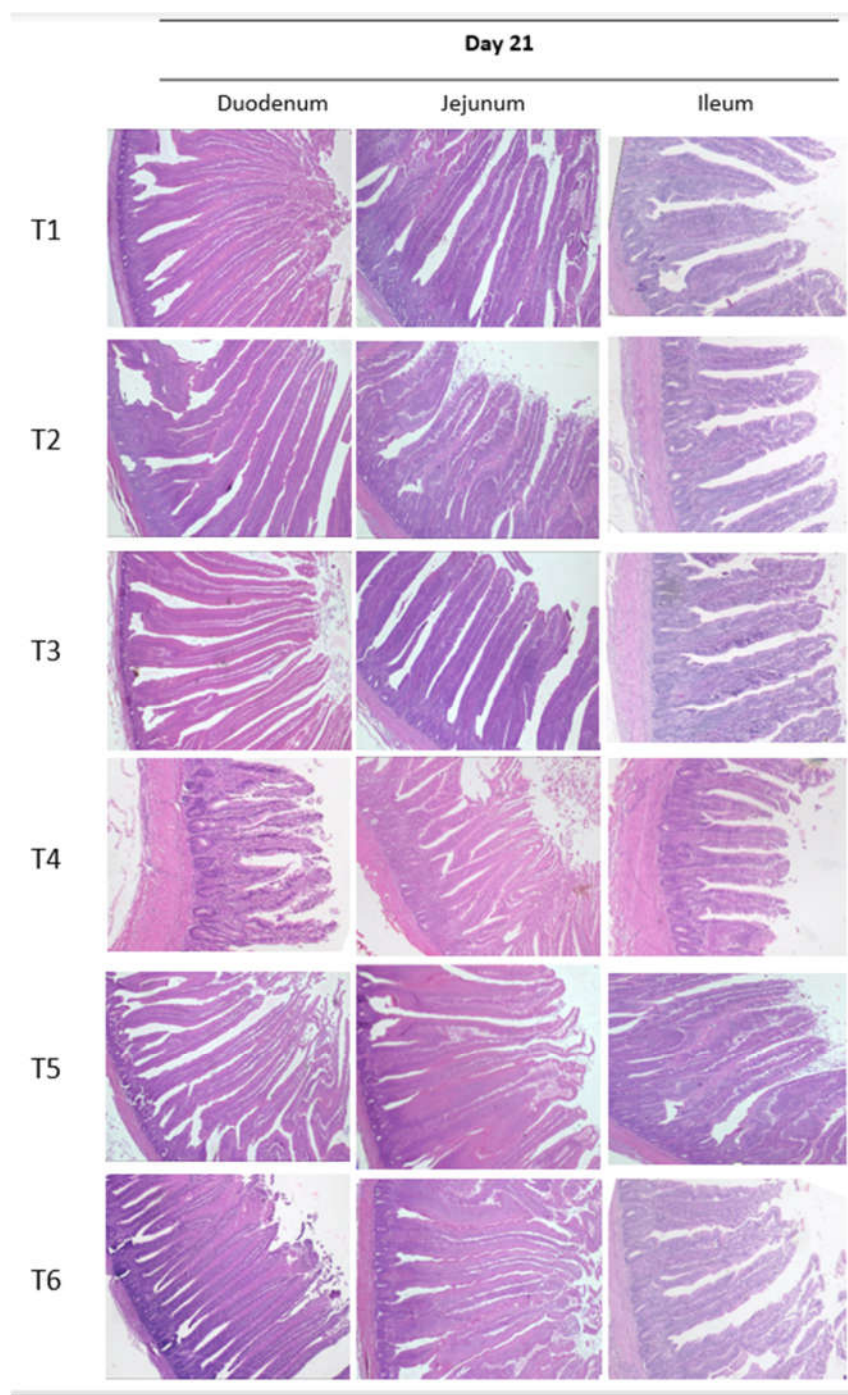
# Supplementary section



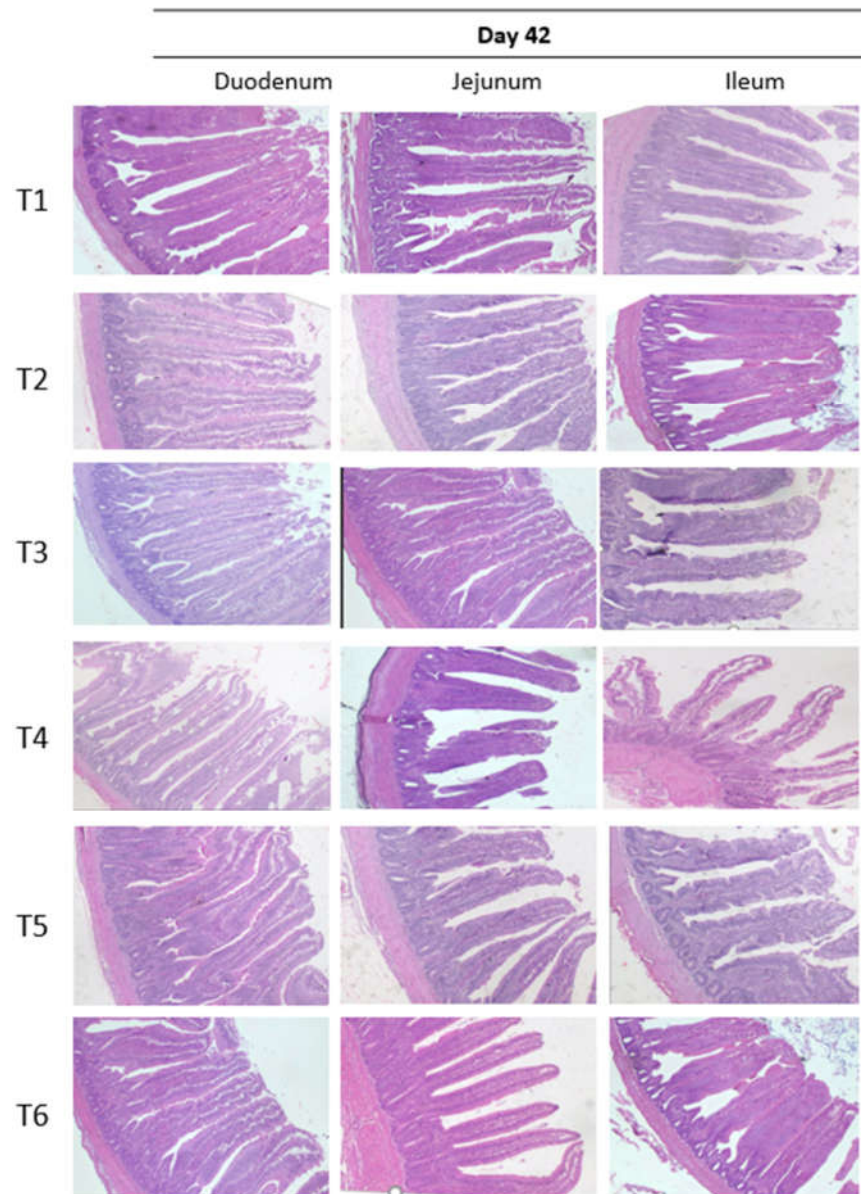
**Figure S1.** Comparison of the internal organ weights (expressed as relative percentage to total body weight) after respectively 21 and 42 days in broilers fed a control diet or *Fusarium*-mycotoxins contaminated diet, with or without supplementation of a yeast cell wall extract (YCWE) or postbiotic yeast cell wall-based blend (PYCW) added at an inclusion rate of 2.0 kg/T. T1 = Control with no supplement and no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON, 0.1 mg/kg T-2, 0.079 mg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW. Different superscript letters above the bars indicate significant differences between treatments,  $P \leq 0.05$  (ANOVA followed by Tukey's multiple range test).



**Figure S2.** Effect of a *Fusarium* multi-mycotoxin challenge compared to a control diet on the caecal concentration of (a) acetate, (b) propionate, (c) butyrate, (d) isobutyrate, (e) valerate, (f) isovalerate short-chain fatty acids of broilers with or without the addition of a yeast cell wall extract (YCWE) or postbiotic yeast cell wall-based blend (PYCW) (mean  $\pm$  SE). T1 = Control with no supplement and no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON, 0.1 mg/kg T-2, 0.079 mg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW. Different superscript letters above the bars indicate significant differences between treatments,  $P \leq 0.05$  (ANOVA followed by Tukey's multiple range test).



**Figure S3.** Histological observations of intestinal villi using light microscopy after staining of duodenum, jejunum and ileum small intestine tissue samples collected on day 21 for broilers fed *Fusarium* multi-mycotoxin challenge compared to a control diet with or without the addition of a yeast cell wall extract (YCWE) or postbiotic yeast cell wall-based blend (PYCW). T1 = Control with no supplement and no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON; 2.17 mg/kg 3-ADON; 104 µg/kg T-2; 79 µg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW.



**Figure S4.** Histological observations of intestinal villi using light microscopy after staining of duodenum, jejunum and ileum small intestine tissue samples collected on day 42 for broilers fed *Fusarium* multi-mycotoxin challenge compared to a control diet, with or without the addition of a yeast cell wall extract (YCWE) or postbiotic yeast cell wall-based blend (PYCW). T1 = Control with no supplement and no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON; 2.17 mg/kg 3-ADON; 104 µg/kg T-2; 79 µg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW.

**Table S1.** Monitoring of the gut intestinal pH after respectively 21 and 42 days in broilers fed a control diet or *Fusarium*-mycotoxins contaminated diet, with or without supplementation of a yeast cell wall extract (YCWE) or postbiotic yeast cell wall-based blend (PYCW) added at an inclusion rate of 2.0 kg/T.

Treatments*	pH at Day 21			pH at Day 42		
	Duodenum	Jejunum	Ileum	Duodenum	Jejunum	Ileum
T1: CON	6.15 ± 0.02	5.82 ± 0.07	5.83 ± 0.08	5.93 ± 0.03	5.72 ± 0.03	6.09 ± 0.08 <sup>ab</sup>
T2: CON + YCWE	6.03 ± 0.04	5.68 ± 0.04	5.69 ± 0.09	5.87 ± 0.07	5.83 ± 0.05	6.04 ± 0.09 <sup>ab</sup>
T3: CON + PYCW	6.03 ± 0.03	5.62 ± 0.05	5.68 ± 0.09	6.02 ± 0.04	5.76 ± 0.10	5.85 ± 0.08 <sup>a</sup>
T4: TOX	6.07 ± 0.02	5.69 ± 0.04	5.73 ± 0.07	5.98 ± 0.08	5.88 ± 0.05	6.20 ± 0.06 <sup>b</sup>
T5: TOX + YCWE	6.05 ± 0.02	5.64 ± 0.05	5.68 ± 0.08	6.07 ± 0.04	5.89 ± 0.04	6.34 ± 0.06 <sup>b</sup>
T6: TOX + PYCW	6.03 ± 0.03	5.71 ± 0.03	5.57 ± 0.09	6.10 ± 0.03	5.86 ± 0.05	6.07 ± 0.09 <sup>ab</sup>
Main effect, <i>P</i> -Values	0.156	0.164	0.522	0.053	0.277	<b>0.003</b>
Contrast, <i>P</i> -Values:						
T1 vs T2	0.053	0.132	0.318	0.474	0.135	0.653
T1 vs T3	<b>0.018</b>	<b>0.035</b>	0.285	0.106	0.689	<b>0.048</b>
T1 vs T4	0.062	0.137	0.423	0.585	<b>0.011</b>	0.318
T4 vs T5	0.662	0.535	0.653	0.361	0.864	0.155
T4 vs T6	0.349	0.708	0.198	0.187	0.800	0.274

\*Treatments description: T1 = Control with no supplement, no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON, 0.1 mg/kg T-2, 0.079 mg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW. Means within a column bearing different superscripts differ significantly ( $P \leq 0.05$ ) for the main effects of treatments (ANOVA followed by Tukey's multiple range test).

**Table S2.** Goblet cell count in the small intestine of broilers fed a basal diet or *Fusarium* contaminated diet supplemented, with or without supplementation of a yeast cell wall extract-based product (YCWE) or postbiotic yeast cell wall-based product (PYCW) at an inclusion rate of 2.0 kg/T (n=12).

Treatments*	Counts, Day 21			Counts, Day 42		
	Duodenum	Jejunum	Ileum	Duodenum	Jejunum	Ileum
T1: CON	6.43 ± 0.37 <sup>ab</sup>	6.50 ± 0.77	6.62 ± 0.35 <sup>ab</sup>	8.06 ± 0.43 <sup>a</sup>	7.81 ± 0.34	6.87 ± 0.59 <sup>a</sup>
T2: CON + YCWE	8.06 ± 1.06 <sup>a</sup>	7.93 ± 0.87	7.93 ± 0.34 <sup>b</sup>	8.87 ± 0.22 <sup>a</sup>	7.43 ± 0.35	7.75 ± 0.41 <sup>ab</sup>
T3: CON + PYCW	8.75 ± 1.16 <sup>a</sup>	8.37 ± 0.59	8.25 ± 0.35 <sup>b</sup>	10.68 ± 0.31 <sup>b</sup>	7.93 ± 0.40	9.18 ± 0.43 <sup>b</sup>
T4: TOX	4.56 ± 0.4 <sup>b</sup>	6.25 ± 0.44	5.31 ± 0.61 <sup>a</sup>	8.18 ± 0.2 <sup>a</sup>	7.31 ± 0.40	6.43 ± 0.31 <sup>a</sup>
T5: TOX + YCWE	8.12 ± 0.76 <sup>a</sup>	7.56 ± 0.57	6.81 ± 0.56 <sup>ab</sup>	11.12 ± 0.41 <sup>b</sup>	8.43 ± 0.34	7.62 ± 0.45 <sup>ab</sup>
T6: TOX + PYCW	8.31 ± 0.43 <sup>a</sup>	7.93 ± 0.46	6.62 ± 0.61 <sup>ab</sup>	10.37 ± 0.35 <sup>b</sup>	8.68 ± 0.28	8.93 ± 0.26 <sup>b</sup>
Main effect, <i>P</i> -Values	<b>0.002</b>	0.123	<b>0.001</b>	<b>&lt;0.001</b>	<b>0.052</b>	<b>&lt;0.001</b>
Contrast, <i>P</i> -Values:						
T1 vs T2	0.140	0.117	0.061	0.090	0.460	0.152
T1 vs T3	<b>0.037</b>	0.052	<b>0.021</b>	<b>0.000</b>	0.805	<b>0.000</b>
T1 vs T4	0.089	0.784	0.061	0.793	0.325	0.472
T4 vs T5	<b>0.002</b>	0.151	<b>0.033</b>	<b>0.000</b>	<b>0.029</b>	0.053
T4 vs T6	<b>0.001</b>	0.066	0.061	<b>0.000</b>	<b>0.008</b>	<b>0.000</b>

\*Treatments description: T1 = Control with no supplement, no mycotoxin challenge (CON); T2 = T1 + YCWE; T3 = T1 + PYCW; T4 = Contaminated diet (TOX: 3.0 mg/kg DON, 0.1 mg/kg T-2, 0.079 mg/kg ZEA); T5 = T4 + YCWE; T6 = T4 + PYCW. Means within a column bearing different superscripts differ significantly ( $P \leq 0.05$ ) for the main effects of treatments (ANOVA followed by Tukey's multiple range test).