

Phytobiotics as antibiotics replacement in broilers poultry production.

Cassandra Ceccopieri 1., Marcin Gumowski 2, Damian Konkol 2, Jan P. Madej 1.
1. Department of Immunology, Pathophysiology and Veterinary Preventive Medicine.
2. Department of Animal Nutrition and Feed Science Wrocław University of Environmental and Life Science.

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INTRODUCTION

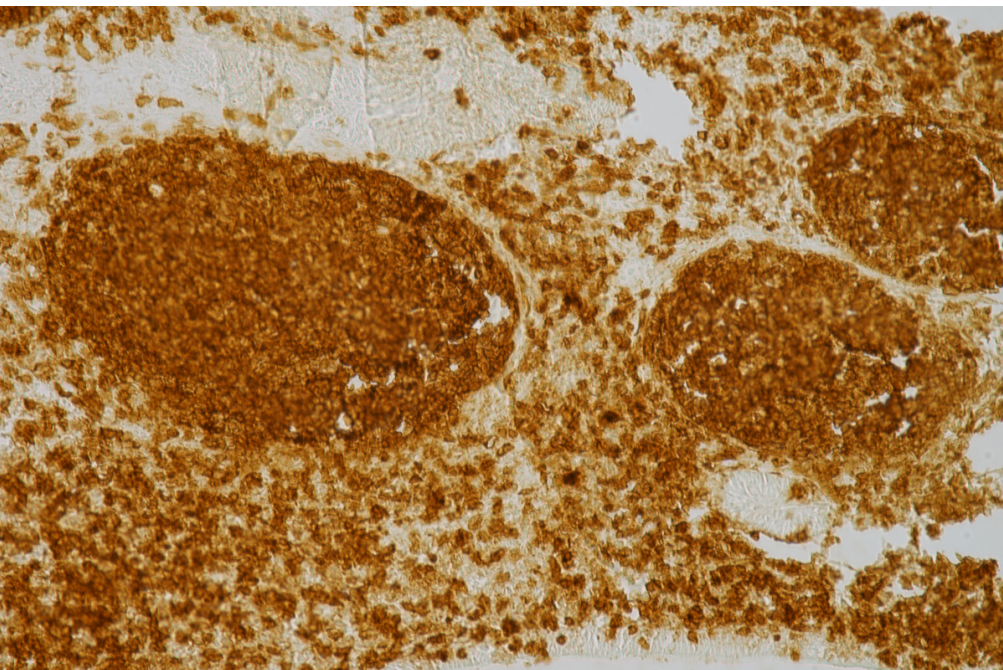
Poultry is the most widespread food industry worldwide. With **high demand** comes the need of **high rate of production**. **Antibiotics** represent, since decades, a solution to two problems: **containing the spreading of infections** and **improving growth rate**. The improper use of antibiotics poses a threat for **antibiotics resistance**. **Plant derived substances** are becoming a trending alternative to antibiotics to elicit immune protection and growth enhancement.

MATERIAL AND METHODS

Evaluation of **growth enhancement** and **immunological status** at several time points (7, 14, 21, 28 and 35 days) post introduction of 3 different formulas **of anti-inflammatory herbal feed additives** (designed by Adifeed Sp. z o. o., Warsaw, Poland) in **broiler ROSS 308** diet.

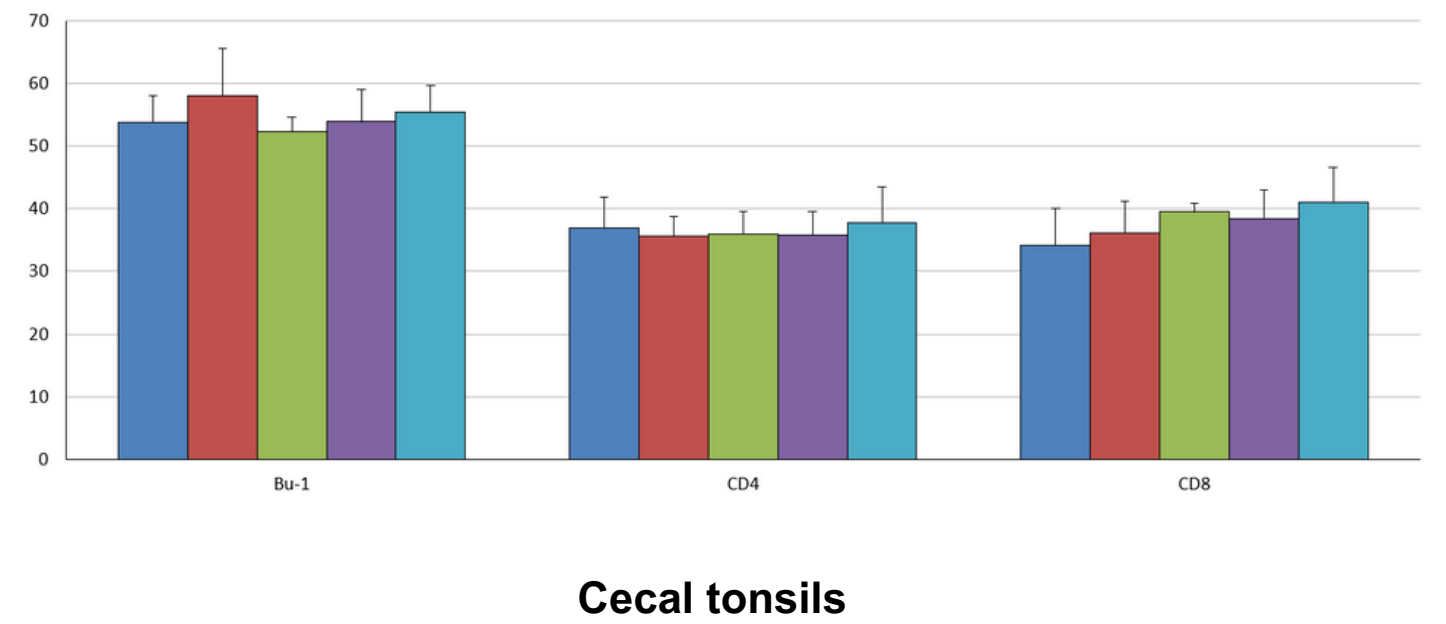
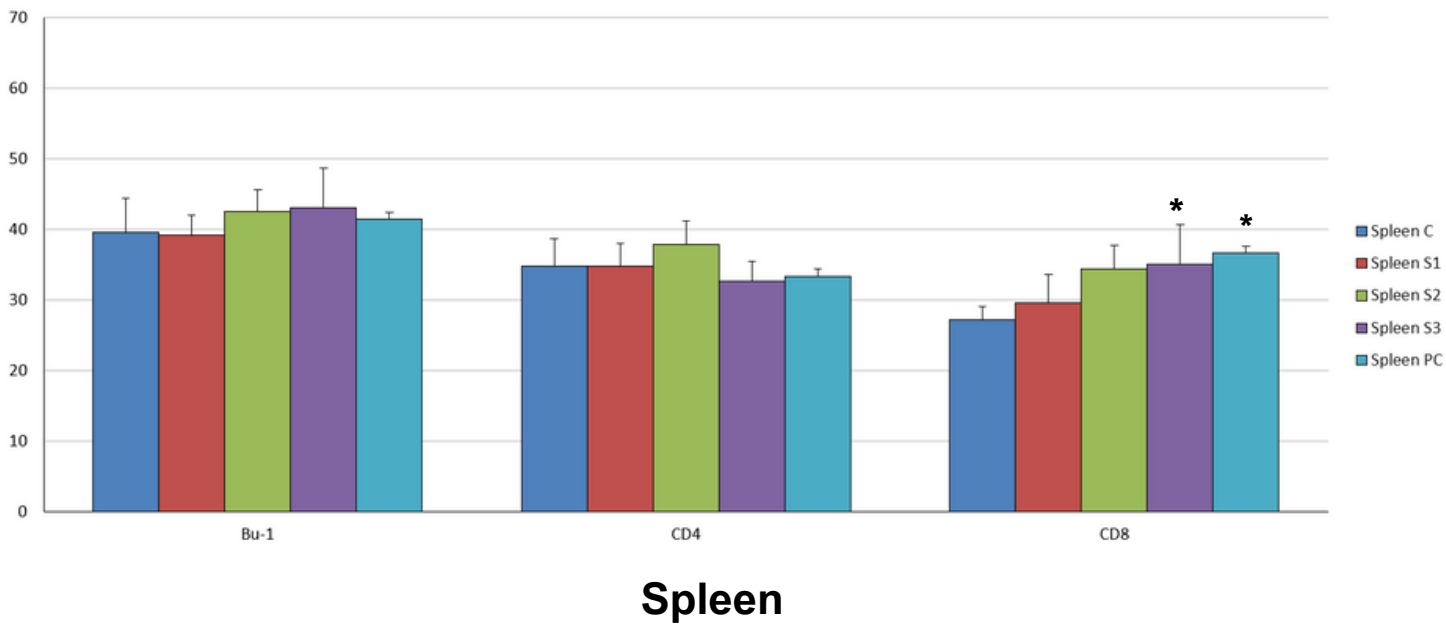
RESULTS

Prototype 1 had a **positive effect** on **body weight** after 7 and 35 days of fattening period at a dose of **0.02%**. **No evident immunomodulatory effects were triggered**. This is not to be considered as a negative result, given that **immune modulation do not obligatory lead to an increase in ymphocyte count**.



Spleen section of 35 days old chicken, 400x. Immunohistochemical staining of Bu-1 positive cells (B-cells)

Parameter	A	B	C	NC	PC	SEM	P-value
7th day							
BW (g)	191.0	198.6 ^a	186.6 ^b	192.4	197.3 ^a	1.456	0.050
DG (g)	21.57	22.65 ^a	20.95 ^b	21.77	22.47 ^a	0.208	0.050
FI (g)	175.6	176.1	176.6	176.5	176.5	0.314	0.829
FCR	0.920 ^a	0.888 ^a	0.947 ^b	0.920 ^a	0.895 ^a	0.006	0.043
14th day							
BW (g)	503.6	514.5	494.8	510.3	516.6	3.205	0.158
DG (g)	44.92	45.56	44.12	45.47	45.89	0.339	0.527
FI (g)	552.5	560.2	557.5	560.1	564.2	1.343	0.074
FCR	1.098	1.089	1.129	1.098	1.092	0.005	0.110
21st day							
BW (g)	1029.5 ^a	1048.9 ^a	1010.7 ^a	1050.4 ^b	1039.4 ^b	4.786	0.039
DG (g)	75.67	77.01	73.79	77.18	75.64	0.712	0.594
FI (g)	1193.9 ^a	1213.6 ^a	1192.3 ^a	1222.7 ^b	1210.6 ^b	3.628	0.022
FCR	1.159	1.157	1.180	1.164	1.165	0.003	0.191
28th day							
BW (g)	1746.1	1744.3	1740.5	1739.3	1736.6	7.783	0.996
DG (g)	102.4	101.1	104.4	98.4	100.2	1.112	0.520
FI (g)	2256.3	2253.4	2255.3	2251.0	2256.9	2.894	0.973
FCR	1.292	1.292	1.297	1.294	1.300	0.004	0.983
35th day							
BW (g)	2611.2 ^a	2629.5 ^a	2574.4	2530.0 ^b	2518.7 ^b	14.73	0.050
DG (g)	123.5	127.7	119.3	116.4	111.7	1.968	0.083
FI (g)	3657.9 ^a	3719.4 ^a	3647.1 ^a	3581.6 ^b	3571.3 ^b	16.19	0.014
FCR	1.400	1.415	1.416	1.415	1.418	0.003	0.506
Mortality (%)	4.642	4.285	5.357	4.642	3.214	-	-
EPEF	513	512	494	496	495	4.768	0.521



a,b - statistically significant differences with $P \leq 0.05$; A – group receiving prototype 1 in amount of 100 g/t feed mixture; B group receiving prototype 1 in amount of 200 g/t feed mixture; C –group receiving prototype 2 in amount of 100 g/t feed mixture; NC – negative control; PC – positive control; BW – body weight; DG – daily gains; FI – feed intake; FCR – feed conversion ratio; EPEF – European Production Efficiency Factor; SEM – standard error of the mean.

The graphs plot the area occupied by the antigen-positive cells (mean \pm SD, n = 8) in spleen and cecal tonsils of 35-day-old broilers. NC: negative control, A: prototype 1 in amount of 100 g/t feed mixture, B: prototype 1 in amount of 200 g/t feed mixture, C: prototype 2 in amount of 100 g/t feed mixture, PC: positive control. The significant difference compared with the control was evaluated as * $P \leq 0.05$.