

Effect of *In Ovo* Injection Time Of Various Plant Byproducts on Hatching Traits, Productive Performance and Physiological Aspects Of Hatched Chicks

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Table S1. Weights, lengths and pH of digestive organs sections of chicks affected by *in ovo* injection time of various plant byproducts.

IOS×IOT	Proventriculus			Small intestine			Large intestine			Total gut	
	W (g)	L (cm)	pH	W (g)	L (cm)	pH	W (g)	L (cm)	pH	W (g)	L (cm)
NC×10	1.53	1.60 ab	3.30	9.46 a	90.50 b	5.10 a	0.92	17.50 d	6.20 ab	22.06 ab	119.70 d
PC×10	1.42	1.60 ab	3.25	8.86 b	93.05 ab	5.05 a	1.75	21.00 a	6.20 ab	23.54 ab	125.35 ab
SP×10	1.16	1.40 ab	3.40	8.58 b	97.25 a	4.30 b	1.16	18.75 cd	5.80 b	21.52 ab	126.60 a
PP×10	0.79	1.50 ab	3.50	8.80 b	93.00 ab	4.95 b	1.21	18.50 cd	6.65 a	21.11 ab	123.25 c
OL×10	1.00	1.30 b	3.35	9.74 a	94.75 ab	4.85 b	0.92	19.25 bc	6.35 ab	22.35 ab	124.25 bc
NC×18	0.97	1.90 a	3.10	8.15 b	94.50 ab	4.40 b	0.98	20.50 a	6.50 ab	20.65 ab	127.40 a
PC×18	1.37	1.45 ab	3.30	8.60 b	93.50 ab	4.75 b	1.31	19.25 bc	6.35 ab	22.12 ab	123.65 c
SP×18	1.23	1.55 ab	3.25	9.09 ab	94.00 ab	4.30 b	1.53	20.25 ab	6.45 ab	22.37 ab	124.95 bc
PP×18	1.45	1.60 ab	3.25	10.36 a	93.50 ab	4.85 b	1.45	22.00 a	6.40 ab	24.61 a	126.45 a
OL×18	0.96	1.35 b	3.30	8.51 b	93.00 ab	4.75 b	1.34	20.50 a	6.35 ab	20.31 b	124.85bc
<i>In ovo</i> injected substance (IOS)											
NC	1.25	1.75 a	3.20	8.80	92.50	4.75	0.95	19.00	6.35	21.30 b	123.55 b
PC	1.40	1.52 ab	3.27	8.73	93.27	4.90	1.53	20.12	6.27	22.83 a	124.50 ab
SP	1.19	1.47 ab	3.32	8.83	95.62	4.30	1.34	19.50	6.12	21.94 ab	125.77 a
PP	1.12	1.55 ab	3.37	9.58	93.25	4.90	1.33	20.25	6.52	22.86 a	124.85 ab
OL	0.98	1.32 b	3.34	9.12	93.87	4.80	1.13	19.87	6.35	21.33 b	124.55 ab
<i>In ovo</i> injection time (IOT)											
10 days	1.18	1.48	3.36	9.09	93.71	4.85	1.19	19.00	6.24	22.11	123.83 b

18 days	1.19	1.57	3.24	8.94	93.70	4.61	1.32	20.50	6.41	22.01	125.46 a
Pooled SEM	0.169	0.10	0.12	0.47	1.07	0.23	0.19	0.97	0.14	0.91	1.70
p-value											
IOS	0.074	0.025	0.108	0.092	0.080	0.107	0.477	0.101	0.143	0.040	0.023
IOT	0.173	0.095	0.272	0.271	0.671	0.375	0.095	0.099	0.989	0.675	0.044
IOS×IOT	0.099	0.041	0.093	0.031	0.025	0.042	0.108	0.038	0.030	0.047	0.036

NC, PC, SP, PP, and OL - negative control, positive control, and *in ovo* injection of sweet orange peel, pomegranate peel, and olive leaf, respectively, on day 10 (×10) and day 18 (×18) of incubation; W – weight, L - length; SEM - standard error of the mean; a, b, c, d - means within a column with different letters differ significantly ($p \leq 0.05$).

Table S2. Visceral organs weights of chicks affected by *in ovo* injection time of various plant byproducts.

IOS×IOT	Adrenal gland (g)	Pancreas (g)	Lungs (g)	Kidneys (g)	Liver (g)	Heart (g)	Yolk sac (g)	Thymus gland (g)	Spleen (g)	Bursa of Fabricius
NC×10	0.04	0.14 b	0.11 b	0.36 ab	2.62 b	0.85 ab	0.14	0.12 b	0.11	0.10 b
PC×10	0.02	0.24 b	0.41 ab	0.27 b	3.05 ab	0.95 ab	0.43	0.19 ab	0.11	0.20 ab
SP×10	0.05	0.22 b	0.76 a	0.61 a	2.53 b	0.54 b	0.26	0.30 a	0.06	0.19 ab
PP×10	0.04	0.35 ab	0.58 ab	0.46 ab	2.60 b	0.87 ab	0.23	0.19 ab	0.09	0.19 ab
OL×10	0.05	0.16 b	0.57 ab	0.51 ab	2.90 b	0.96 ab	0.26	0.21 ab	0.09	0.21 ab
NC×18	0.04	0.57 a	0.12 b	0.42 ab	2.36 b	0.75 ab	0.19	0.13 b	0.10	0.10 b
PC×18	0.07	0.30 ab	0.52 ab	0.36 ab	3.67 ab	0.64 b	0.18	0.18 ab	0.12	0.29 a
SP×18	0.07	0.41 ab	0.67 ab	0.42 ab	5.44 a	1.23 a	0.15	0.20 ab	0.11	0.16 ab
PP×18	0.08	0.24 b	0.81 a	0.33 ab	4.04 ab	0.87 ab	0.14	0.20 ab	0.08	0.20 ab
OL×18	0.08	0.21 b	0.59 ab	0.32 ab	3.29 ab	0.65 b	0.19	0.18 ab	0.10	0.20 ab
<i>In ovo</i> injected substance (IOS)										
NC	0.04	0.35	0.11 b	0.39	2.49	0.80	0.16	0.12 b	0.10	0.10 b
PC	0.04	0.27	0.46 ab	0.31	3.36	0.79	0.30	0.18 ab	0.12	0.24 a
SP	0.06	0.31	0.71 a	0.51	3.99	0.88	0.20	0.25 a	0.08	0.18 ab
PP	0.06	0.29	0.70 a	0.39	3.32	0.87	0.18	0.19 ab	0.08	0.19 ab
OL	0.06	0.18	0.58 a	0.42	3.09	0.81	0.22	0.19 ab	0.09	0.22 ab
<i>In ovo</i> injection time (IOT)										
10 days	0.04 b	0.22	0.48	0.44	2.74 b	0.83	0.26	0.20	0.09	0.18
18 days	0.06 a	0.34	0.54	0.37	3.76 a	0.82	0.17	0.17	0.10	0.19
Pooled SEM	0.00	0.04	0.10	0.08	0.57	0.10	0.04	0.02	0.02	0.03
p-value										
IOS	0.482	0.108	0.021	0.077	0.101	0.321	0.129	0.027	0.141	0.041
IOT	0.032	0.079	0.114	0.238	0.044	0.111	0.082	0.094	0.136	0.748
IOS×IOT	0.203	0.044	0.043	0.030	0.026	0.025	0.471	0.030	0.098	0.023

NC, PC, SP, PP, and OL - negative control, positive control, and *in ovo* injection of sweet orange peel, pomegranate peel, and olive leaf, respectively, on day 10 (×10) and day 18 (×18) of incubation; SEM - standard error of the mean; a, b, - means within a column with different letters differ significantly ($p \leq 0.05$).