

Egg Quality Enhancing Effects of
Active Constituent of *Emblica officinalis*

OBJECTIVE

To investigate the effect of polyphenolic compound: ellagic acid on the egg quality parameters in quails reared under normal conditions and at high environmental temperatures

MATERIALS AND METHODS

Japanese quails (*Coturnix coturnix Japonica*; n=240; 5-weeks old) were reared at 2 environmental temperatures [thermoneutral (TN) and heat stress (HS)]. Eight groups consisting of 30 female quails at 35 days of age were assigned into 6 replicates, and each replicate included 5 quails. The research was conducted in a 2 × 4 (heat, dose) factorial trial. Thermoneutral (TN) groups were kept in cages in temperature-controlled rooms, and heat stress (HS) groups were kept at 34°C for 9 h (08:00–17:00 h). The quails received either a basal diet or a basal diet supplemented with ellagic acid in 0, 100, 200, or 400 mg/kg of the diet. The egg quality parameters viz. egg shell weight (g), egg shell thickness (mm), yolk index, albumen index, and Haugh unit were evaluated.

RESULTS

Effect of ellagic acid on egg quality of laying quail reared at different temperatures

		Eggshell weight, g	Shell thickness, mm	Yolk index	Albumen index	Haugh units
TN		0.93	0.204	38.52	9.50	86.43
HS		0.90	0.203	38.38	9.42	86.43
TN	0	0.92	0.203	38.42	9.37	86.28
	100	0.92	0.203	38.50	9.49	86.30
	200	0.94	0.204	38.56	9.52	86.54
	400	0.94	0.206	38.58	9.64	86.62
HS	0	0.89	0.202	38.26	9.29	86.23
	100	0.89	0.202	38.32	9.31	86.46
	200	0.90	0.203	38.37	9.46	86.50
	400	0.91	0.205	38.55	9.58	86.52
SEM		0.01	0.13	0.28	0.13	0.27
ANOVA		P				
ET		0.001	0.401	0.497	0.328	0.970
ELA		0.018	0.069	0.888	0.166	0.669
ET×ELA		0.850	0.964	0.993	0.965	0.971

TN, Thermoneutral; HS, Heat stress; ET, Environmental temperature; SEM, Standard error of mean; ELA, Ellagic acid, p<0.05. Data are presented as mean and SEM

CONCLUSIONS

There was a significant effect of dietary ellagic acid levels (p< 0.05) and environmental temperature (p<0.001) on eggshell weight.

Reference:
Mutlu SI, Gultur T. The effect of ellagic acid on performance, digestibility, egg quality, cecal bacterial flora, antioxidant activity, and some blood parameters in laying quails reared at different temperatures. Turkish J. Vet. Anim. Sci. 2021;45(1):101-12.