## عنوان مقاله:

Enhancement of Productive Performance, Bone Physical Characteristics, and Mineralization of Laying Hens during the Post-Peak Period by Genistein


## محل انتشار:

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## نویسندگان:

T Saberifar - Faculty of Animal Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

F Samadi - Faculty of Animal Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

B Dastar - Faculty of Animal Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

S Hasani - Faculty of Animal Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

M Kazemifard - Department of Animal Sciences, Sari Agricultural Sciences and Natural Resources University, Sari, Iran

F Ganji - Department of Biology, Faculty of Sciences, Golestan University, Gorgan, Iran



## خلاصه مقاله:

Genistein (GEN), a soybean isoflavone, is structurally and functionally similar to endogenous estrogen; therefore, it has the potential to enhance estradiol properties. This study aimed to evaluate the effects of GEN on the reproductive performance and bone status of laying hens. In total, ۸۰ Hy-line W-۳۶ (۴۰ weeks old, the late stage of egg production cycle) with an initial body weight of ۱,۲۳۰±۱۵.۸ g (Mean±S.E.M), similar egg production, and egg weight were randomly assigned into two groups with ۱۰ replicates and ۴ birds in each replicate (۴۰ laying hens per group). Laying hen diets had ۰ (control) and ۲۰ mg/kg GEN (white powder, Sichuan Guanghan co. Ltd., purity of ۹۸.۵%) for ۶ weeks (۴۱ to ۴۶). At the end of the experiment, ۲۰ hens (one hen from each replicate) were slaughtered, and the samples of bone and shell gland (approximately ۵۰ mg) were surgically taken immediately after slaughter for Real-time PCR. The results indicated that dietary GEN increased egg production, feed intake, and egg mass; however, it decreased egg weight ($p < ۰.۰۵$). Furthermore, the feed conversion ratio was greater in birds received GEN, compared to those in the control group ($p < ۰.۰۵$). GEN enhanced egg quality indices included eggshell strength, thickness, and percentage ($p < ۰.۰۵$). Mechanical properties of the tibia, such as weight, length, and breaking strength were also increased by GEN ($p < ۰.۰۵$). Moreover, dietary GEN increased the calcium content of the tibia ($p < ۰.۰۵$). The mRNA expression of Calbindin-D۲۸k (CaBP-D۲۸k) and transient receptor potential vanilloid channel type ۶ (TRPV۶) upregulated in eggshell glands of hens treated with GEN paralleled to the controls ($p < ۰.۰۵$). In conclusion, the findings of the present study showed that GEN had the potential to improve the bone physical characteristics, mineralization, and the productive performance of Hy-line W-۳۶ laying hens in their post-peak period.



## کلمات کلیدی:

Bone, CaBP-D۲۸k, Genistein, productive performance, TRPV۶