

## Abstract

The present study was conducted to evaluate the effects of using processed sesame and safflower meals (SM and SFM) in Japanese quails diet in three experiments. First and second experiments were conducted to assess the effect of SM and SFM containing microbial and enzyme supplementations on performance, meat quality and humoral immunity of growing Japanese quail. The third experiment was conducted to investigate the effect of sesame meal containing additives on performance, egg quality, and blood parameters of Japanese quail. In the first experiment, a total of ۳۰۰ seven-days-old Japanese quails were assigned in a completely randomized design to five treatments, four replications and ۱۰ chicks in each replication. The experimental treatments included ۱) a corn and soybean meal based diet (control) ۲) diet containing ۲۰٪ SFM ۳) diet containing ۲۰٪ Fermented SFM ۴) diet containing ۲۰٪ SFM + Calsporin® probiotic ۵) diet containing ۲۰٪ SFM+ Endo-Power® enzyme. The results of this study showed that the use of fermented SFM, Calsporin® probiotic and enzyme treatments improved weight gain and feed intake of chicks when compared to control group ( $P < 0.05$ ). The meat water holding capacity and also antibody titer against sheep red blood cell were higher in treatment receiving fermented SFM when compared to control group ( $P < 0.05$ ). In the second experiment, A total of ۴۸۰ seven-days-old Japanese quails were assigned in a completely randomized design to eight treatments, four replications and ۱۰ chicks in each replication. The experimental treatments included ۱) a corn and soybean meal based diet (control) ۲) diet containing ۳۰٪ SM ۳) diet containing ۳۰٪ Fermented SM with *Saccharomyces cerevisiae* ۴) diet containing ۳۰٪ SM + *Saccharomyces cerevisiae* probiotic ۵) diet containing ۳۰٪ Fermented SM with *Bacillus subtilis* ۶) diet containing ۳۰٪ SM + *Bacillus subtilis* probiotic ۷) diet containing ۳۰٪ Fermented SM with *Lactobacillus sakei* ۸) diet containing ۳۰٪ SM + *Lactobacillus sakei* probiotic. The results of this research indicated that the use of sesame meal treatments had no significant effect on the performance and blood parameters of Japanese quail compared to the control treatment. The highest level of antibody produced against sheep red blood cell and Newcastle virus was in treatment receiving sesame meal with *Saccharomyces cerevisiae* ( $P < 0.05$ ). In the third experiment, a total of ۲۰۰ seven-weeks-old Japanese quails were assigned in a completely randomized design to five treatments, four replications and ۱۰ birds in each replication. The experimental treatments included ۱) a corn and soybean meal based diet (control) ۲) diet containing ۳۰٪ SM ۳) diet containing ۳۰٪ SM + *Saccharomyces cerevisiae* probiotic ۴) diet containing ۳۰٪ SM + calsporin® probiotic ۵) diet containing ۳۰٪ SM + *Lactobacillus sakei* probiotic. The results of this research revealed that addition of *Saccharomyces cerevisiae* in the diet significantly increased egg production percentage at the ۱۰th week compared to control ( $P < 0.05$ ). Due to the positive effects of fermented safflower and sesame meal, containing probiotic and enzyme supplements on performance, meat quality, immune system, and egg laying of Japanese quail, these available and inexpensive protein sources could be used in Japanese quail diets.

**Keywords:** *Bacillus subtilis*, enzyme, fermentation, Japanese quail, *Saccharomyces cerevisiae*



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