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EFFECTS OF DIETARY SELENIUM INCLUDING PROBIOTICS MIXTURE ON GROWTH PERFORMANCE, SERUM BIOCHEMICAL PARAMETERS OF PHARAON QUAILS

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Abstract

Adding probiotic supplements to feed increases the bioavailability of nutrients, health status, immunity, productivity and bird conservation. Selenium supplements what are using inorganic and organic forms are used to increase the growth rate and the antioxidant protection of the organism. However, these forms have limitations such as narrow safety interval, non-specific binding to tissue proteins. The selenium nanoparticles (SeNPs), which have better bioavailability, relatively high safety margins and low toxicity, can serve as alternatives. The purpose of this research was studying of the effects of the feed probiotic additive, selenium nanoparticles, in comparison with the inorganic form of selenium and their complex on growth, conversion of feed, biochemical parameters of blood and preservation of quail. According to the scheme, a number of 600 one day old quails was used, of which, according to the analogues principle, 6 groups were formed (in four subgroups each): control and five experimental ones. The experiment lasted 35 days. Birds of group 1 (control) were fed with Standard diet, experimental quails of 2nd group - Standard diet + 0.3mg of sodium selenite / kg feed, 3rd group. - Standard diet + 0.3mg (SeNPs) / kg feed, 4th group - Standard diet + Probifilact, 5th group - Standard diet + 0.3mg sodium selenite / kg feed + Probifilact, 6th group. - Standard diet + 0.3mg (SeNPs) / kg feed + Probifilact. The conditions for birds keeping in all groups were the same.

It was established that quails of experimental groups over live weight prevailing control analogues. Concentrations of cholesterol, triacylglycerols in serum decreased, and protein content increased with respect to control in the 2nd, 3rd and 6th quail groups ($p < 0.05$). An increase in calcium content in the 3rd, 4th and 6th bird groups was detected ($p < 0.05$). At the same time, in experimental groups there is a tendency to decrease the activity of marker enzymes (AlAT, AsAT), decrease of content of total lipids, uric acid, creatinine. Thus, the addition of inorganic selenium, probiotics, NPSe and their complexes have a positive effect on biochemical parameters, increment, conversion rate of feed and conservation of quails with respect to control. Nanoselen separately, and in combination with a probiotic, has more effective effect compared to sodium selenite

Key words: sodium selenite, selenium nano-particles, quails, Bifidobacterium, Lactobacillus, enzymes