Studies on physiological and immunological traits in quail

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SUMMARYThis study was carried out at the Quail Research Unit, Agricultural Production Technology Center, Faculty of Agriculture, Cairo University, Giza, Egypt.It was aimed to evaluate the effect of Biovet- YC, Bioyeast and OSY with Vit E as feed additives on productive performance, immune and physiological responses in Japanese quail (Coturnix coturnix japonica).A total number of 600, one- wk old Japanese quail chicks were used in this study. Birds were selected randomly from the foundation flock. At two wks of age, birds were transferred to the growing batteries.Birds were divided into three groups of 180 chicks each. Chicks of the first, second and third groups were fed basal diet supplemented with either Biovet — YC, Bioyeast and OSY with vit E as feed additives, respectively. Chicks of each group were subdivided into three subgroups each of 60 chicks in two replicated each receiving 250,500 and 1000 g/ton of both Biovet-YC and Bioyeast, while the third subgroups receiving 100,200 and 300g/ton OSY with vit E, respectively. The tenth group was fed basal diet only and consider as control group.The results can be summarized as follows•Feeding quail chicks a diet supplemented with Bio-Yeast, OSY and vit E and Biovet, respectively significantly increased body weight from the 1 st to 7 th wk of age when compared with control group.•Analysis of variance revealed highly significant effects due to treatments applied, supplemented levels and the interaction between them on the average body weight at all periods of estimation.•Average body weight at the 7 th wk of age was significantly higher in birds fed 250g Bio-Yeast, 1000g Biovet-Yc, 500g Bio-Yeast and 300g/tonSummary 123ration of OSY&vit E, respectively, when compared with other levels of different treatments and control group.•Body weight gain were improved significantly by using biological additives compared with control group.•Analysis of variance showed that variation in body weight gain due to treatments applied and the interaction between treatments applied and supplemented levels was found to be of highly significant effect at all the period of estimation.•Average body weight gain at the period from (1-3), (3-5) and (5-7 wks) of age was higher in quail fed diet contaning Bio Yeast than those fed diet with either OSY & Vit E or Biovet-YC, respectively.•Quails fed diet with either 500 and 1000,g/ton Bio-Yeast or 300g/ton OSY and vit E had the highest averages of body weight gain at the period from 1-3 wk of age. While at the period from 3-5 wk the highest averages of body weight gain were found in quails fed in diet supplemented with 500, 1000g/ton Bio-Yeast and 500g/ton Biovet-YC. While during the period from 5-7 wk of age the highest averages of body weight gain were observed in quails fed diet containing, 1000g/ton Biovet-YC and 250g/ton Bio Yeast, respectively when compared with other treatments applied and control group.•Quail fed OSY&vit E decreased average of feed consumption during the period from (1-7 wks) followed by those fed Bio Yeast and Biovet-Yc, respectively when compared with control group.•Analysis of variance showed that variation in feed consumption (g/bird/day) due to treatments applied and supplemented levels was highly significant effect ($p<0.001$) at all periods of estimation.•Quail, fed diet supplemented with 100g/ton OSY&Vit E had the lowest average of feed consumption followed by those fed diet with 250g/tonSummary 124Biovet — YC during the period from 1-7 wks of age than those of other levels of different treatments and control group.•Feed conversion improved significantly by adding biological additives comparing with those given un-supplemented control diet.•The best averages of feed conversion during the all periods (1-7 wks) were found in chicks fed Bio Yeast, OSY& Vit E and

Biovet (feed/g/gain), respectively when compared with control group.•Quails fed 250g/ton Bio Yeast or Biovet improved feed conversion than other levels of different treatments applied and control group during the period from 1-7 wks of age.•Adding biological additives increased significantly absolute and proportional weights of eviscerated weight, edible parts and total edible meat compared with those given un-supplemented control diet.•Quails fed diet with Bio yeast had the highest average of absolute and proportional weights of eviscerated and total edible meat, respectively, followed by those fed OSY&vit E, then by those fed Biovet-YC in absolute and proportional weight of eviscerated weight and total edible meat, respectively when compared with control group.•Analysis of variance showed that differences variations in absolute eviscerated weight and absolute and proportional weight of total edible meat due to treatments applied, supplemented levels and the interaction between them were highly significant ($p<0.001$).•Chicks receiving diet with 500 g/ton Bio Yeast increased absolute eviscerated weight and total edible meat followed by those fed with 300g/ton OSY& Vit E for absolute weighs of eviscerated and total edible meat, respectively. Quail chicks fed diet supplemented with 100g/ton OSY& Vit E had the highest averages of absolute and relative weights of edible parts when compared with other levels of different treatments andcontrol group.Summary 125•Mortality rate significantly decreased in quail chicks fed Biovet-Yc, Bio yeast, and OSY & vit E, respectively compared with control group.•Mortality rate was found to be highly significant due to treatments applied.•Average serum glucose was higher in non-supplemented control diets.•The highest values of hemoglobin concentration were observed in chicks fed supplemented diets compared with control group.•Serum total protein decreased with advanced age. While serum albumin in supplemented group fluctuated with age compared to control group.•Serum globulin decreased with age until 7 wks of age. Also globulin in supplemented group fluctuated with age compared to control group.•Chick fed Biovet-YC had lower serum creatinine at all ages ofestimation.•Highly significant effect ($p<0.001$) on serum creatinine at 3 wks of age was found due to treatments applied.•Average level of serum GOT decreased with advanced age reached itsminimum value at 7 wk of bird's age.•Serum GOT level was higher in quail chicks fed diet supplemented with Bio Yeast and Biovet compared with control group and other treatmentsapplied at 5 wks of age.•Highly significant affect on serum GOT was found due to treatments applied and the interaction between treatments applied and supplementedlevels at 5 wks of age only.•Averages serum GOT were higher in quail chicks fed Bio Yeast , Biovet YC and OSY & Vit E compared with control group at 7 wks.Summary 126•Serum cholesterol level at 3 wks of age decreased in quail chicks fed OSY &Vit E), Biovet —YC and Bio Yeast compared with control group•Treatments applied had highly significant effect ($p<0.001$) on serum cholesterol level at 5 and 7 wks of age.•Quail chicks fed Biovet —YC, Bio Yeast and OSY & Vit E, respectively had lowest averages of LDL-cholesterol at 3 wks compared with controlgroup.•Analysis of variance showed highly significant variations in serum LDL- cholesterol due to treatments applied and supplemented levels at all period of estimation.•Quails fed Bio Yeast had the lowest averages of H/L ratio (0.53, 0.50,0.40) followed by those fed Biovet-Yc (0.57, 0.53, 0.48) then by those fedOSY&Vit E (0.56, 0.50, 0.50), respectively at all estimated periods.•Chick fed Bioyeast had the lowest averages of H/L ratio at 7 wks of age. However, chicks of unsupplemented control diet had highest average of H/L ratio•The interaction effects between treatments applied and supplemented levels had highly significant effect on heterophil to lymphocyte (H/L) ratio at 3 , 5 and 7 wks of age.•The lowest value of serum uric acid (4.79mg/dL) was observed in chicks fed 200g/ton OSY&Vit E followed by those fed diet with either 500g/ton (4.80) or 250g/ton Bio Yeast (4.99mg/dL) at 5 wks of age compared with different levels and control group.•The interaction between treatments applied and supplemented levels had highly significant effect on serum uric acid at 3 and 5 wks of age only.Summary 127•Serum alkaline phosphatase significantly decreased in supplemented groups when compared with control.•Serum alkaline phosphatase level was found to be of highly significant effect due to treatments applied and supplemented levels at all periods of estimation.•The lowest value of serum triglycerides was observed in quail chicks fed Bio Yeast (322.61) followed by OSY & vit E (337.83mg/dL) then by those fed Biovet-YC (260.21) compared with control group (356.18mg/dL).•Serum triglycerides level was found to be of highly significant effect due to treatments applied and supplemented levels at all period of estimation.•The interaction

between treatments applied and supplemented levels had highly significant effect on triglycerides at all periods of estimation.Feeding quail chicks diet with Biovet, Bioyest and OSY increased body weight, weight gain, improved feed conversion and carcass traits and decreased mortality rate . Feed additevs decreased serum cholesterol, LDL cholesterol, uric acid, and creatine. While it increased serum globulin.Feeding quail diets containing 250g / ton of either Biovet or Bioyest and 100 g / ton OSY 250g / ton improved the previously mentioned traits.Genarerally, it could be advised to supply quail chicks diets with 250g / ton of either Biovet or Bioyeast and 100 g / ton OSY 250g / ton in order to get higher economic efficiency.Summary 128