The present study was designed to investigate the effect of Polyzyme supplementation in low crude protein diets on Molar duck growth performance, carcass traits, some serum blood biochemical parameters, some histomorphological measurements and economic efficiency. Two hundred and forty, un-sexed one day old White Molar ducks chicks, were used in this study and grown over 70 days. Ducks were randomly assigned to eight groups, (3 replicates of 10 birds each), kept in a separate pen, reared under similar management and hygienic conditions. Feed and water were provided ad-libitum during the experimental period (70 days). Polyzome was added at the same levels (0, 1, 2 and 3g Kg diets) to the low crude protein content that was used as a negative control (18 and 16 % CP) and the diet with normal content of crude protein, which was used as the positive control (20 and 18% CP) during the periods of starter (1-21 days) and finishing (22-70 days), respectively. Ducks in group T4 (fed 3g polyzome/ Kg diet + negative control) having significantly higher body weight (1034g) on the marketing age (at the end of 10th weeks), the same trend was noticed. Birds fed the negative control diet with different levels of enzymes 1, 2 and 3g polyzome/ Kg diet significantly (P ≤ 0.05) consumed more feed than the negative control diet without supplementation during (0-10) weeks of age. Feed conversion ratio was significantly improved in T4 group T3 group (1.89 and 1.83) compared to other treatment from 0-3 weeks. Also, FCR recorded the same trend in T4 group at 4-10 and 0-10 weeks of age being 3.38 and 2.64, respectively compared to the other treatments. Addition of graded levels of polyzome to Molar diets was significantly affecting all carcass traits. Adding graded levels of Multi-enzyme either to the negative or positive control significantly increased both serum glucose and AST enzymes, but serum creatinine, total lipids, significantly increased in positive control with 2 and 3g polyzome (T5 and T6), respectively in comparison with other treatments. Morphological sections of Molar ducks small intestine revealed that villi height, width and villi height: villi width are significantly increased with the polyzome supplementation levels up to the level of 3 g/ kg diet and trend to decrease after that, but still better than the negative control group. In general, and through the results obtained from feeding White Molar duck chicks from one day to 10 weeks of age on low crude protein diets (18 and 16%) during the starter period (1 – 21 d) and the finisher (22 – 70 d) with addition of different levels of commercial polyzome mixture (1, 2 and 3g Kg diet) improved growth performance due to increased activity of the small intestine and rate of nutrient absorption. The European efficiency ratio and performance index were improved when adding 3g polyzome Kg diet (4th treatment), while the economic and relative efficiency were better (1.56 and 110.64, respectively) in the 2nd treatment in which chicks fed low crude protein diet +1g polyzome compared to the other treatments.

**Key words:** Multi enzyme, low protein, performance, ducks
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المقدمة

أجريت دراسة حالية بحثية بوصفها المزارع الخاصة بمدينة السادس، محافظة المنوفية، مصر - خلال الفترة من يوليو – سبتمبر 2022م - بهدف دراسة تأثير إضافة مكونات من مخلوط جراثيم من كائنات الطيور تسمى الإنزيمات في قمحها على أداء الطيور لحومية الشكل، بدءاً من مراحل الأissementات...

المؤلف:
Nader Sobhy Saeed Elfergany