Physiological response, semen quality and blood biochemical parameters of rabbit bucks supplemented with phytogenic components under summer of Egypt.

Abstract

Seventy-two mature New Zealand White (NZW) rabbit's bucks were randomly and equally divided into eight groups each of nine bucks to evaluate the impact each of rocket seeds (RS), carrot seeds (CS), or bay laurel leaves (BLL) and their mixtures on semen quality, biochemical components and the physiological response of NZW rabbits bucks during hot summer conditions. The study started in June and lasted for 8 weeks. Eight experimental diets were formulated such that diet (D1) free additives as a control group. Diets 2, 3 and 4 contained 1.0% RS, 1.0% CS and 1.0% BLL, respectively. Diet 5, 6 and 7 contained a mix of 0.5% RS+0.5% CS, 0.5% CS+0.5% BLL and 0.5% RS+0.5% BLL, respectively, while diet 8 contained 0.33% RS+0.33% CS+0.33% BLL. Insignificant effect on buck's body weight, however, feed intake was significantly increased as compared to bucks group given the control diet. Supplementation with RS, CS, BLL, and their mixtures caused significant improvement in ejaculate volume, individual motility, total motile sperm, sperm concentration, live sperm%, total functional sperm fraction, total sperm output, and decreased abnormal sperm%. Seminal plasma initial fructose and globulin increased significantly with RS, CS, BLL, and their mixtures treatments. Seminal plasma alkaline phosphatase (ALP), alanine aminotransferase (ALT), and aspartate aminotransferase (AST) appeared reduction significantly with the RS, CS, BLL and their mixtures treatments. Seminal plasma total antioxidant capacity (TAC) increased, while, malondialdehyde (MDA) levels significantly decreased in all supplemented groups compared with the control bucks' value. Most of the supplemented groups showed a significant decrease in blood plasma glucose, cholesterol, triglycerides, and total lipids, low-density lipoproteins, AST and ALT as compared to the control group. However, blood plasma total protein and albumin were increased in comparison with the control group. Blood plasma TAC significantly increased due to the addition of RS, CS, BLL, and their mixtures as compared to the control group, but MDA levels decreased.

Keyword: Semen, Rocket, Carrot, Bay laurel, Heat Stress, Total Antioxidant Capacity, Malondialdehyde.