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## Evaluation of Haemato-Biochemical and Lipid Profiles of Laying Hens Fed Black and Red Pepper Additives

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### Abstract

This study was designed to examine the haemato-biochemical and lipid profiles of commercial laying hens fed diets with black pepper (*Piper guineense* Schum & Thonn) and red pepper (*Capsicum annum* Heiser & Smith) additives. A total of 315, 20 weeks old pullets were allotted to seven treatments in a completely randomised design. Treatment 1 was the control with no additive; Treatment 2 had 1% black pepper powder; Treatment 3 had 1.5% black pepper powder; Treatment 4 had 1% red pepper powder; Treatment 5 had 1.5% red pepper powder; Treatment 6 had a mixture of 0.5% black pepper and 0.5% red pepper, while Treatment 7 had a mixture of 0.75% black pepper and 0.75% red pepper powder. From the results obtained, the Packed cell volume was significantly higher in the treated diet groups, with the 1.5% red pepper treatment having the highest (36.50%) as against the least (27.77%) obtained from the control treatment. A higher level of Alkaline phosphatase (319.33 IU L<sup>-1</sup>) and lowest value of Alanine aminotransferase (8.67 IU L<sup>-1</sup>) were obtained from hens fed the combination diet (0.5% each of black pepper and red pepper), which were significantly different from values obtained from the hens fed the basal diet (195.67 IU L<sup>-1</sup> and 15.00 IU L<sup>-1</sup> respectively). Total cholesterol level was elevated in the control treatment (164 mg dL<sup>-1</sup>) and the 1.5% black pepper treatment (135.67 mg dL<sup>-1</sup>), while the other treated groups had significantly lower values with the group fed the 1% black pepper treatment having the least level of 101 mg dL<sup>-1</sup>. The same trend of significance was also observed in the low-density lipoprotein/high-density lipoprotein ratio with the control treatment and the 1.5% red pepper treatment having the highest (6.08) and least (1.41) values respectively. As observed from the study, the haemato-biochemical and lipid profiles of the laying hens showed varied significant differences that favoured the treated groups over the control treatment. Such variability indicates the positive impact of the feed additives on the health of the laying hens, which also reflects their potential to improve the productivity of the flock.

**Keywords:** Black pepper, haematology, laying hens, lipid profile, red pepper, serum biochemistry