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Neutrophil and Lymphocyte Counts in Broilers Administered Aqueous *Vernonia amygdylina* as Natural Growth Promoter

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Abstract

Plant extracts (phytogenics) are a group of natural growth promoters (NGPs) used as feed additives. They are derived from medicinal plant (herbs) and spices and are commonly regarded as favourable alternatives to antibiotic growth promoters (AGPs) in livestock production. Currently, organic farming is taking place in many countries in the world with the ban of antibiotics as growth promoters. The effect of plant extracts *in vivo* cuts across improvement in growth performance, antibacterial, antioxidant and immune response modulatory effect with few discrepancies in results obtained from different studies. This experiment was designed to determine the effect of aqueous *V. amygdylina* extract on neutrophil and lymphocyte counts in four weeks old broiler chickens. A total of one hundred and fifty (150) Anak 2000 day-old chicks were randomly distributed to 3 treatments having five replicates of ten birds per replicate. Birds in treatment 1 (control group) were not administered antibiotic or plant extract. Birds in treatment 2 were administered antibiotics while birds in treatment 3 were administered 1.00 ml of aqueous *V. amygdylina* per bird on day 7, 14 and 21 as natural growth promoter. A standard starter diet was supplied ad-libitum for 4 weeks. The experiment was designed as a complete randomised design. Blood was collected into EDTA bottles from 2 birds per replicate to determine, neutrophils and lymphocytes counts. Values obtained were subjected to one-way analysis of variance (ANOVA) using Turkey's post hoc test and significant means ($p < 0.05$) were evaluated using Minitab v.17 software.

Neutrophil and lymphocyte counts were significantly ($p < 0.05$) affected by Aqueous *V. amygdylina* administration. Neutrophil count was 52.2 ± 3.30 in birds administered *V. amygdylina* with a value of 43.7 ± 2.98 in birds administered antibiotics and 34.2 ± 5.27 in the control group. Lymphocyte counts were significantly ($p < 0.05$) lower in birds administered aqueous *V. amygdylina* (40.7 ± 4.15), compared to the control group (53.3 ± 2.72). This value was numerically lower but not significantly different ($p > 0.05$) from that recorded for antibiotic administration (50.2 ± 1.84).

It can be concluded that a phytogenic extract like Aqueous *V. amygdylina* positively impacts neutrophil and lymphocyte counts in broiler chickens.

Keywords: Broiler chicken, lymphocytes, neutrophil, phytogenics, *Vernonia amygdylina*