**SCHOOL OF VETERINARY MEDICINE**

**UNIVERSITY OF GHANA**



**Seminar for Appointment as an Assistant Lecturer**

Presenter: Dr. Francis Kwaku Dogodzi

Title: Cytokine Profile and Biochemical Parameters in Cross-Bred Cattle infected with Anaplasma Marginale

Date: Thursday, February 2, 2023

Venue: School of Agriculture Conference Room

Time: 2:00 pm

**Abstract**

It is certain that Bovine Anaplasmosis causes devastating losses in the livestock industry especially in the tropical and subtropical regions. Previous reports suggest that, the disease results in anomalies in certain haematological and biochemical parameters. Thus, measurements of biochemical and cytokine levels of infected animals can serve as valuable indicators for the diagnosis, prognosis, management, and treatment of the infection. The aim of this study was to determine the levels of some biochemical parameters and cytokine profiles of Holstein- Friesian and Sanga cross- bred cattle infected with *Anaplasma marginale*. Blood samples were collected via jugular venipuncture from forty (40) animals randomly selected at four weeks intervals at two time points. Polymerase chain reaction (PCR) was performed on extracted DNA obtained from blood samples to identify positively infected cattle with *Anaplasma marginale*. Serum samples collected were used to measure levels of cytokines (Interleukin-4, Interleukin-10 and Interferon- alpha) as well as the biochemical parameters; Alanine aminotransferase (ALT), Aspartate aminotransferase (AST), Alkaline phosphatase (ALP), Blood urea nitrogen (BUN), Total Serum Protein, Total Bilirubin, Direct Bilirubin and Creatinine. At time point one, 55% of cattle tested positive while 70% tested positive at time point two for *A. marginale*. At time point two, there was a significant difference in the Direct Bilirubin (p=0.02) and Creatinine (p=0.004) among the infected and non-infected cattle. Interferon-alpha (IFN- α) was the only cytokine to have a significant difference (p=0.004) between infected and non-infected cattle at time point two. The study identified *A. marginale* by molecular diagnostic technique (PCR) which is accurate and sensitive in the diagnosis of Bovine Anaplasmosis. The study further showed a higher prevalence of the pathogen in the cattle at both time points. Direct Bilirubin and Creatinine showed statistically significant difference while only Interferon alpha (IFN- α) showed statistical significant difference at the end of the study.