

# Molecular Diagnosis and Haemato-Biochemical Changes in *Anaplasma Marginale* Infected Dairy Cattle

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**Abstract**—The present study was aimed to diagnose *Anaplasma marginale* in naturally infected crossbred cows and to determine its effect on haemato-biochemical profile. Blood samples were collected from animals (n=200) for detection of the rickettsial organism by direct smear and direct blood PCR based techniques targeting the major surface protein 5 (MSP-5). Direct Blood PCR revealed a 382-bp amplified fragment in positive control samples. When random blood samples were screened under light microscope and direct blood PCR method 7.5 % of samples were positive under microscopic examination whereas PCR analysis revealed 10.5 % positive for *A. marginale*. This confirms its utility in rapid diagnosis of *A. marginale* with high specificity and sensitivity. The infected group (n=25) showed significantly ( $p<0.01$ ) decreased levels of TEC, Hb and PCV than healthy control animals. However, differences in the red blood cell indices were non-significant ( $p>0.05$ ) indicating normocytic normochromic anaemia in affected crossbred cattle. Serum samples (n=25) of infected cows showed significantly ( $p<0.01$ ) higher values of ALT, AST, BUN, creatinine and TBIL than that of healthy control. A significant decrease ( $p<0.01$ ) of TSP and albumin was also recorded in the infected cows compare to healthy control. The standardized PCR method of the present investigation may be useful for rapid and accurate diagnosis of *A. marginale* in subclinical/carrier animals as the whole blood could be directly used. Haemato-biochemical studies concluded that anaemia and erythrophagocytosis are considered to be the major components of this disease and adversely affect liver and soft tissue of the affected animals.