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Cytochrome B gene amplification: A novel approach for diagnosis of theileriasis in cattle under field conditions

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Theileria are intra cellular protozoa transmitted by ticks causing disease in ruminants. In Arthropods (vectors) it remains in gut and salivary gland, in host *Theileria* infect both types of bloods cells i.e., RBC's and WBC's. Infective stage (sporozoites) is released during tick feeding, after infection one cell may contain 40-50000 sporozoites. Infection by a single tick may lead to severe disease and death depending upon the immune response. In present research study 100 cows both infected and carriers were sampled from cattle farms and small holder farmers from Lahore and Kasur districts. Blood Samples were analyzed microscopically by Giemsa stain and at molecular level by amplifying Cytochrome B gene. Sets of primers Cytob R and Cytob R were designed to specifically amplify two different regions of the *T. annulata* cytochrome B. Total DNA was extracted from samples with the help of TIANGEN DNA Extraction kit following the manufacturer instructions. 100 DNA samples were quantified by Spectrophotometry to evaluate the concentration and quantity of extracted DNA from the blood samples. Then PCR for cytochrome B was performed. Percentages of negative and positive samples while PCR showed 20 positive samples. During research it was found that five blood samples that were observed negative by simple microscopy, they displayed positive result after polymerase chain reaction.

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Helminth and Plasmodium falciparum infections among inhabitants of the Tono irrigation area in Ghana, West Africa

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In Northern Ghana, the Tono Dam is one of the major irrigational facilities constructed for dry season farming, serving as water source for domestic and livestock. However, the construction of irrigational facilities has generally been documented to cause an increase in parasitic infections. A total of 333 inhabitants between the period of May, 2011 and February, 2012 in five communities within the Tono irrigational area of the Kassena Nankana District of the Upper East Region of Ghana, were studied for parasitic infections. An overall prevalence of 10.7% was found in the study population with Schistosoma mansoni, S. haematobium, Dracunculus medinensis and Plasmodium sp., being the main types of parasites identified. Although multiple infections were recorded, none of the subjects had all four parasitic infections identified. Correlation analysis showed Hb levels were not affected by infection with these parasites; however a very low Hb value of 6.6 g/dl was recorded in a female infected with both malaria and S. Mansoni. S. mansoni was one of two most widespread infections with a prevalence of 19.22% and mean intensity of 6.14±1.35 eggs/g of stool, followed by Plasmodium sp. (5.11%) with a mean density of 299.6±115.86 parasites/µL of blood. S. haematobium (1.50%) infections followed with mean intensity of 4.67±2.73 eggs/10 mL of urine. Hookworm 0.90% was the least widespread parasite, found in only two of the communities. Prevalence of parasitic infections by occupational groups showed the exception of rice farmers, S. mansonia recorded (66.67%) in vegetable and crop farmers (6.06%) in the unemployed. Plasmodium falciparum infections were recorded highest in students (24.24%) and least in fishermen (3.03%). S. haematobium infection reported as high as (9.09%) as against (3.03%) in fishermen. Dracunculus medinensis infection was reported in only two occupational groups, vegetable farmers (6.06%) and fish mongers 3.03% respectively. Factors such as contact with the canals or the Dam Lack of knowledge on the causes and prevention of these parasitic infections, inadequate and improper use of protective gear during farming were identified as the major causes of such high rates of infection. Snail screening of dam and canal water revealed 90% of snails harbored monocercaria not fork tailed cercariae a discovery worth investigating into, in the near future.

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