

# THE EFFECT OF INFECTION WITH *TRYPANOSOMA EVANSI* ON SOME HEMATOLOGICAL PARAMETERS OF IRAQI LOCAL CAMELS IN THE WASIT PROVINCE: PART I

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**ABSTRACT :** Across sectional study was conducted to estimate the prevalence of *Trypanosoma evansi* in Iraqi local camels in Wasit province. A total of 96 blood samples were collected randomly the period from March to May 2019. The samples were subjected microscopic test and qPCR. Results revealed that the prevalence were 4.2% fore microscopic test and 27.1% for qPCR. The difference between the two diagnostic techniques was significant ( $P < 0.0001$ ). The infection rate was affected significantly by the age of camel as the older age were associated with higher rates of *T. evansi* infection ( $p = 0.02$ ). Assessing hematological parameters in Iraqi camels showed a reduction in all erythron parameters of the infected camels compared to the non-infected ( $p < 0.05$ ). On the other hand, increased WBC counts and a shift in the percentage of Lymphocytes to Neutrophils was recorded in the infected camels, in addition to the increase in the percentage of Eosinophils ( $p < 0.05$ ). Age and sex of camels affected the hematological parameters as all hematological parameters were higher in healthy as compared with infected. In conclusion, the infection lead to reduction in the means of all hematological parameters.

**Key words :** Camels microscopic test, qPCR, *Trypanosoma evansi*.

## INTRODUCTION

The camels play an important role in human's life. They live in the desert, semi-desert and even in the irrigated land. The camel is physiologically and anatomically adapted to survive in harsh conditions. This multi-purpose animal is used for milk, meat, leisure, etc. Among all products, the camel's milk is specifically requested by some people for its nutritional and therapeutic benefits. Therefore, camel's milk's products started to spread worldwide (El-Agamy *et al*, 2009; EICMP, 2017).

Camels like other domestic animals are also prone to various pathogenic and infectious agents and diseases (Jasim *et al*, 2015). They are exposed to many external and internal parasites, which can lead to a seriously impaired health and productivity both directly and indirectly (Gutierrez *et al*, 2010). Trypanosomiasis is a one of the most important protozoan diseases that have spread recently (Mohamoud, 2017). *Trypanosoma evansi*, has a wide range of geographic distribution from Asia, Africa to South and Central America (Khosravi *et al*, 2015). It also affects a broad range of domestic animals, including camels, equines, cattle, dogs, buffaloes, small ruminants, carnivores and pigs in addition to human

which makes it a possible zoonotic disease (Joshi, 2013). Transmission of *T. evansi* occurs mechanically by haematophagous flies mainly of the genus *Tabanus* (Chaudhary and Iqbal, 2000); since it is an extracellular parasite that survives in the blood stream.

Camel trypanosomiasis causes serious economic losses in livestock accompanied by anemia, loss of condition, anorexia, weakness and emaciation that lead to low milk production and meat yield, increased risk of abortion and death (Njiru *et al*, 2005). The disease also interferes with immunity and causes immunosuppression manifested by secondary bacterial and/or viral infections and sometimes vaccination failure (Hilali *et al*, 2006). Incidence and severity of the disease are affected by the strain of the parasite and the species of the affected host (Sivajothi *et al*, 2014). In camels, anemia is the key feature of the disease which caused dropping in the erythrocyte counts and indices and lead animals to die (Noyes *et al*, 1999).

Prevalence of the *T. evansi* has been recorded in various species of animals and by different diagnostic methods in Iraq (Al-Naily *et al*, 2018); nevertheless, the studies on *T. evansi* in Iraqi local camels are very limited and to the best of our knowledge no study has been