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PARASITOLOGICAL AND MOLECULAR STUDY OF CAMEL ANAPLASMOSIS IN AL-NAJAF PROVINCE, IRAQ

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ABSTRACT : The present study was planned to investigate *Anaplasma* spp. in camels by using blood smear method and PCR. The study includes collection of a 150 blood samples from camels in slaughter house in Al-Najaf province, Iraq, at period from January into October, 2018. The microscopical results showed the rate of infection at *Anaplasma* spp. was (30%). Show a higher infection rate in male (22.22%) than in females (16.66%) without significant difference.The Prevalence of*Anaplasma* related to age was (8.33%),(27.77%) in young and adultage respectively.The results revealed that Springshowed highest rate of infection with Anaplasmosis 36.84 % (14/38)the lower rate recorded in Winter 5.12% (2/39).Molecular blood examination results, the total infection rate of*Anaplasma* in camels showed 55%. Ten positive PCR products were sequenced and deposited in Genebank data base, phylogenic analysis demonstrated that 6 sequences belongs to *Anaplasmamarginale*(MK855071.1, MK855072.1, MK855076.1, MK855078.1,MK855079.1, MK855080.1), while 2 sequence (MK855073.1,MK855074.1) belongs to *Anaplasmacentrale*, and2 sequence(MK855075.1, MK855077.1) belongs to *Anaplasmaovis*,In conclusion,PCR technique revealed higher sensitivity in distinguish between *Anaplasma* species than conventional method.

Key words **:** Molecular methods, *Anaplasmamarginale, Anaplasmacentrale*, *Anaplasmaovis*, camels, Iraq.

INTRODUCTION

Anaplasmosis is one of important haemoparasitic disease, it is Known as blood borne parasitic disease caused by protozoan parasites *Anaplasma*that infect a wide range of domestic and wild animals (Sudan *et al*, 2014).Anaplasmosis is an acute,chronic disease of camel leading to progressive hemolytic anemia associated with fever, jaundice, decreased milk production, abortions and hyperexcitability (Li *et al*, 2015). *Anaplasma* is transmitted by ticks of different species (*Hyalomma spp*., *Rhipicephalus spp.,Boophilus spp., Ixodes spp.* and *Demacentor spp.*) (Silveira *et al*, 2012; Ismael *et al*, 2016). Also, mechanically transmitted by Stomoxys and Tabanus (Liu *et al*, 2012). Anaplasmosis generally occurs in subtropical and tropical (Hekmatimoghaddam *et al*, 2012).The microscopic examination insufficient for accurate diagnosis and identification of the parasite in particular in chronic cases with low parasitemia, serological diagnosis used for the parasite detection have disadvantages due to the significant levels of false negative and false positive results. (Chansiri *et al*, 2002). So, the PCR has been applied with high sensitivity and specificity compared to other diagnostic methods (Mahmmod *et al*, 2010; Qablan *et al*,2013).The aim of this study was detection of*Anaplasma*species in camels in AL-Najaf province, Iraq based on microscopicand molecular techniques.

MATERIALS AND METHODS

Blood samples collection

Blood specimens (2ml) were collected from the jugular vein of 150camels different ages and of sexes,during the period from January 2018 to December2018in the slaughter house in AL-Najaf province, and kept in tubes containing anti-coagulant(EDTA).All samples were transferred in an ice pack to the Parasitology laboratory of the Veterinary Medicine College, University of Baghdad, for necessary tests todetermine the infection with *Anaplasma* spp.

Microscopic examination

Blood smears were preparedaccording to(Swelum *et a*l, 2014),stained with Giemsa-stain then examined for detection of *Anaplasma* parasite under light microscopy by X100 oil-immersion described according to (Soulsby, 1982).

Blood DNA Extraction

Extraction of DNA from 40 blood specimenscollected,