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The Thesis Submitted for the Degree of DVM

**Detection of Plasmodium parasite in camels of Sistan and
Baluchestan province by Nested PCR**

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Abstract:

Malaria is one of the most prevalent and notorious infectious diseases globally, having been a causative factor for billions of illnesses and millions of deaths in humans over the past fifty years alone. *Plasmodium* parasites comprise 256 infective species found in a wide spectrum of hosts, including humans, monkeys, free-flying birds, reptiles, rodents, and ungulates. Humans occasionally become infected with *Plasmodium* species that typically infect animals, such as *P. knowlesi*.

Sistan and Baluchestan province in Iran, with a population of 62 thousand camels, is also one of the endemic regions for human malaria. Considering the presence of malaria species in ungulates, which can act as reservoirs for the disease, a cross-sectional study was designed for the first time in the country from the fall of 2021 to the winter of 2023 to investigate and identify *Plasmodium* parasites in camels in Sistan and Baluchestan province. Therefore, a random selection of 79 camels from counties with the highest camel population was conducted under aseptic conditions, with blood samples taken from the jugular vein. Additionally, blood samples were collected from superficial ear veins for hematological analysis after staining with a microscope. After DNA extraction, blood samples were examined using the molecular method Nested-PCR, with specific oligonucleotide primers for the mitochondrial cytochrome b sequence of *Plasmodium* (cytb).

In this study, risk factors such as age, gender, race, geographic location, season, history of abortion, history of reduced milk production, history of weight loss, lymph node status, mucosal status, and fever were investigated. According to the obtained results, none of the smear samples showed contamination in microscopic examination. Furthermore, PCR results for the cytb gene confirmed the absence of this parasite.

Keywords: Malaria, *Plasmodium*, Camel, Sistan and Baluchestan, Molecular, Nested-PCR.