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Original Article

Molecular Diagnostic of *Anaplasma marginale* in Carrier Cattle

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Abstract:

Background: Anaplasmosis belongs to the complex of several tick-borne diseases and can cause diseases in the livestock with high economical losses. Cattle that recover from acute infection become carriers and the parasite can persist most probably for the lifetime in the blood. The aim of the present study was the determination of the persistently infected cattle in a region of Iran with the previous history of acute anaplasmosis.

Methods: One hundred and fifty blood samples and corresponding blood smears of cattle without any signs of diseases were prepared from a region in Isfahan/ Iran with the previous history of acute anaplasmosis from March 2007 to July 2007 for cross sectional study of carriers of *Anaplasma*. The blood smears were first screened by Giemsa staining, the extracted DNA from blood cells were analyzed by *Anaplasma marginale* specific nested PCR, and PCR-RFLP using primers derived from 16S rRNA gene and restriction endonuclease Bst1107 I.

Results: *Anaplasma* like structures could be identified in the limited amount of erythrocytes of 75 blood smears. In these samples, the percentage of erythrocytes harboring *Anaplasma* like structures varied from 10⁻³% to 10⁻²%. Nested-PCR and PCR-RFLP analysis showed 58 *A. marginale* positive cases within 75 *Anaplasma* suspected blood samples. In 150 total blood samples, 50% were *A. marginale* positive.

Conclusion: Our results revealed that the traditional Giemsa staining method is not applicable for the determination of the persistently infected cattle. In addition, the results showed that the carrier animals must be widespread in the *Anaplasma* endemic areas in Iran.

Keywords:

[Anaplasma marginale](#) , [Cattle](#) , [Iran](#) , [Carrier](#) , [Nested PCR](#) , [PCR-RFLP](#)

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