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SHORT COMMUNICATION

Prevalence of Brucellosis in Cattle in Urmia, Iran

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ABSTRACT

This study was carried out to know the prevalence of brucellosis in Urmia, Iran. For this purpose, 338 milk samples were collected from 36 villages in two seasons (spring and autumn, 2008). In spring, 82 milk samples from 11 villages and in autumn, 256 milk samples from 25 villages were collected randomly. These samples were examined for *Brucella abortus* antibodies with milk ring test. From 82 milk samples collected during spring, 1 (1.22%) showed positive while others (98.78%) showed negative reaction. From 256 milk samples collected during autumn, 3 (1.17%) showed positive and 253(98.83%) showed negative reaction. It was concluded from the results that prevalence of brucellosis in cattle was low in this region.

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INTRODUCTION

Brucellosis is contagious bacterial infection of livestock (Munir *et al*., 2010) and continues to be of great health concern and economic importance in worldwide including Iran. This disease is caused by aerobic gram-negative bacteria of the genus *Brucella*. Among the genus, *B. abortus* and *B. melitensis* are the leading cause of brucellosis in livestock (Karaca *et al.*, 2007). This organism is also important causal agent of brucellosis in humans (Gul and Khan, 2007). Infection in animals frequently results in abortion and diminished milk production (Cutler *et al.*, 2005).

Man is infected by animal's brucellosis through direct or indirectly by ingestion of animal products as well as by inhalation of air borne agents. The animals that are commonly known to serve as source of human infection are goat, sheep, cattle and swine, dogs have long been known as carriers of *Brucella* (Baldwin and Goenka, 2006). Brucellosis is usually an occupational disease; most cases occur in abattoir workers, veterinarians, hunters, farmers and livestock producers. Sometimes infection occurs after drinking raw milk or eating unpasteurized cheese (Celebi *et al.*, 2007)

Cow production in Urmia city is an important livelihood source. The region is a border city where from time to time animals cross from other countries (Iraq, Turkey) and cannot be controlled properly. Thus, brucellosis epidemic in this region occurs more often. Problems affecting cows health is also effecting their owners economically. It is hoped that this investigation with its inspection of spreading rate among the region's cows and presentation of the needed statistic data, would help to improve milk quality as well as the region's economy.

MATERIALS AND METHODS

Sampling for the detection of *Brucella abortus* antibodies in Urmia cattle were taken in spring and autumn, 2008. In spring and autumn, 82 and 256 milk samples from 11 and 25 villages were randomly collected, respectively. Before sample collection, teats were disinfected with alcohol and then allowed to dry. The first streak of milk was discharged into sterile tubes. These tubes were kept in ice and then transferred to laboratory. Milk ring test (MRT) was performed (Morgan *et al.*, 1978). Briefly, 0.03 µl of *Brucella abortus* antigen (from Iran Pasteur Institution) was added to 1000 µl of milk, mixed well and incubated at 37°C for one hour and then examined for ring formation. Thus results were analyzed by applying Chi square test at significance level $P<0.05$.

RESULTS AND DISCUSSION

From 82 milk samples collected during spring, 1 (1.22%) and 81 (98.78%) showed positive and negative reaction with milk ring test, respectively. From 256 milk samples collected during autumn, 3 (1.17%) and 253 (98.83%) showed positive and negative reaction,

respectively. Statistical analysis revealed non-significant difference of brucellosis in spring and autumn (Chi square value=0.000; P=0.998). Out of 338 total milk samples, 4 (1.18%) and 334 (98.82%) showed positive and negative reaction, respectively.

Brucellosis is worldwide disease particularly in Near East countries, Middle East, Turkey, Iraq, Iran including city of Urmia. It is one of the most economically devastating diseases, which causes great losses among the offsprings and health problems in rural and urban population, due to either direct contact with infected materials or consumption of the contaminated dairy products such as milk. Eradication of this disease in the animals is a necessary step to control the human disease (Taleski *et al.*, 2002; Shareef, 2006). Although the disease prevalence in cattle has been reported to be quite high in Iran, its serological presence in cattle of Urmia is reported to be low in comparison. In the present study, the prevalence of brucellosis in cattle was found to be 1.18%.

The prevalence of brucellosis varies in different regions. For instance, in Khoy city, nearby the Urmia, in West Azerbayjan province, prevalence of brucellosis has been reported to be 26.66% (positive MRT) in spring, 2008. In contrast, in our study, prevalence of brucellosis is reported 1.22% in spring. According to the results, weather conditions had non-significant effects on prevalence of brucellosis among the cattle of the region.

From this study it can be concluded that prevalence of brucellosis in this region of the country is very low; though threat to human population is still there. Therefore, more detailed studies be carried out in this region to make proper and effective control measures.

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