Fasciola Infection in Slaughtered Cattle Livers in Shahrrekord and Guilan - Iran

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Abstract - Fasciola is a parasitic flatworm of the class trematoda that infects the livers of various mammals including livestock animals. The main purpose of the present study was to compare the prevalence of *fasciola hepatica* infection in cattle slaughtered in the Shahrrekord and Guilan, Iran, in the years between 2009 and 2011. In this study, we examined livers of slaughtered cattle in slaughterhouses in Guilan and Shahrekord to find *fasciola hepatica* infection. The prevalence of *fasciola hepatica* was significantly higher in Guilan compared with Shahrekord (P<0.001). The considerable difference in *fasciola hepatica* infection between Guilan and Shahrekord comes mainly from the weather and type of feeding of cattle which differ strongly in Guilan than Shahrekord province.

Keywords — Fasciola hepatica, Cattle Liver, Guilan, Shahrekord.

I. INTRODUCTION

*Fasciola hepatica* is a wide worm category of trematodes that cause disease in humans and herbivores and affects public health [1]. Studies show that *Fasciola hepatica* infection is physically and economically devastating disease such that heavily infected hosts may die and those with lighter infections may suffer inhibited growth and reduced production efficiency [2],[3]. Also *Fasciola hepatica* infestation is a very rare cause of extrahepatic cholestasis[4]. It has also been shown that sheep, goats and lagomorphs are more receptive to the parasite [5]. This parasite is found in many places of the world, where exists conditions of moisture and temperature for their development [6]. In Iran, fascioliasis is also widely distributed throughout the country [7]. Although recent studies indicate that there are many treatments against *Fasciola hepatica* [8], [9], but the parasite is growing in some areas. Cities with high humidity have always been suspected to have a highest prevalence of fasciola infection compared to cities with low humidity. In Iran, Shahrekord enjoys a semi-arid climate with moderate temperatures for their development. In Shahrekord, the annual average temperature is about 5.11°C but the minimum and maximum absolute temperatures recorded in Shahrekord during the last 30 years have been -32°C and +42°C, respectively. On the other hand, Guilan province has a humid subtropical climate with by a large margin the heaviest rainfall in Iran reaching as high as 1,900 millimetres (75 in) in the southwestern coast and generally around 1,400 millimetres (55 in). This study was carried out to compare the prevalence of *Fasciola hepatica* infection during 2009-2011 in slaughtered animals between Shahrekord and Guilan.

II. MATERIAL AND METHODS

A. Protocol of study

This study was carried out in the slaughterhouses of different localities in Guilan province and Shahrekord, Iran. Slaughterhouses were visited in summer and Fall in 2009 and 2011 and the livers of slaughtered cattle were morphologically and microscopically examined. A total of 2000 cattle livers were examined. Liver was examined according to the method described by Ogamba-Ongoma [11] and the parasites were identified by the morphological peculiarities [12] and microscopic confirmation.

B. Statistical Analysis

All values are presented as mean ± S.E.M. Statistical significance was evaluated by chi-square using SPSS 19. Differences with P<0.05 were considered significant.

III. RESULTS

Figures 1, 2, 3 and four shows the percentage of liver infection in cattle slaughtered in slaughterhouses in Guilan and Shahrekord during summer and Fall 2009 and 2011.

![Fig. 1 Percentage of cattle liver infection (of 500 cattle) slaughtered in Guilan and Shahrekord during summer, 2009.](image-url)
The results indicated that through summer and Fall 2009, 58% and 61% of slaughtered cattle livers in Guilan (summer and Fall, respectively) and only 2% of slaughtered cattle livers in Shahrekord had *fasciola hepatica* infection. The rate of infection was highly more in Guilan than Shahrekord ($P<0.001$).

The results also indicated that through summer and Fall 2011, 40% and 55% of slaughtered cattle livers in Guilan and only 1% and 2% of slaughtered cattle livers in Shahrekord (summer and Fall, respectively) had *fasciola hepatica* infection. The rate of infection again was highly more in Guilan than Shahrekord ($P<0.001$).

### IV. DISCUSSION

In our study, the prevalence of cattle liver infection with *fasciola hepatica* was highly more in cattle slaughtered in slaughterhouses in Guilan compared to Shahrekord. Our finding is in line with other findings which show the impacts of climate on the *fasciola hepatica* infection [10] - [12]. The prevalence of fasciolasis is also significantly high in many populations which in part comes from livestock infection origin. It is reported that 2.5 million people have been infected in 61 countries especially from Bolivia, Peru, Egypt, Iran, Portugal, and France, and that more than 180 million people are at risk [13]. As with many parasites there is a distinct seasonal pattern in fasciolosis outbreaks, [14], [15] with two key periods of infection, summer and winter. On the other hand, studies show that F. hepatica in the goats/sheep in Vietnam, regardless of indigenous or imported hosts, appears to be the first demonstration from a tropical country [16]. In Iran, in autumn and winter there are no new infestations of pastures, but the untreated animals presented in their liver flukes acquired in years or months, those who continue [17]. Also in the north of Iran, carpological studies showed 7.3 and 25.4% global prevalence in sheep and cattle, respectively, and traditions in herbal condiments for human consumption, methods of animal husbandry, and annual rainfall may explain the higher prevalence in comparison with other geographic regions of Iran [18]. In accordance with study there are most reports of our country the infection is widely distributed in animal species of interest livestock in all regions, but there are worst affected [19].

### V. CONCLUSION

Our finding indicates that because of favorable climate in Guilan for extending of *fasciola hepatica* infection, the prevalence of *fasciola hepatica* infection in cattle in Guilan is significantly higher than Shahrekord where climate is not as favorable the climate in Guilan for extending of *fasciola hepatica* infection.

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### REFERENCES


