

A PRELIMINARY REPORT ON THE NATURAL LEPTOMONAD INFECTION OF *PHLEBOTOMUS MAJOR* IN AN ENDEMIC FOCUS OF VISCERAL LEISHMANIASIS (VL) IN FARS PROVINCE, SOUTH OF IRAN

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Key-Words: *Phlebotomus* Visceral leishmaniasis Iran.

ABSTRACT

In order to determine the vector of visceral leishmaniasis in the endemic focus of Fars Province in southern Iran, collection and dissection of sand- flies were carried out in the town of Ghir in Firooz - abad district.

A total of 270 sand- flies were dissected. They consisted of *Ph. alexandri*, *Ph. sergenti*, *Ph. papatasi* and *Ph. major*. Five out of 150 *Ph. major* were found infected with promastigotes, three of them with the parasites in the gut as well as the head. This is the first report about the probable vector of kala - azar in Iran.

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INTRODUCTION

Visceral leishmaniasis has been reported sporadically from all over the country (Nadim et al, 1978), but recent information and studies have shown that there are two major endemic foci, namely the provinces of East Azerbaijan (Edrissian et al., 1988) and Fars (world Health Organization, 1990). During recent years the number of VL cases has gradually increase and reached almost to epidemic level in certain areas. Because of the increasing number of reported cases in the district of Ghir, Fars province (table 1.) We decided to study the epidemiology of visceral leishmaniasis in this focus, and one of our main aim in this study was the determination of vector, The present paper shows the results of studies done on natural leptomonad infection of *Ph. major* in the town of Ghir in the summer of 1991.

MATERIALS AND METHODS

Study area. The district of Ghir is situated in a hilly area south of Zagross chain of mountains in Fars province, Fig.1 (57° east longitude and 28° 30' north latitude), with an altitude of 780 m. Ghir is a small town with about 11695 inhabitants, most of buildings are permanent with some temporary shelters. The cultivation is mainly restricted to palm trees. The average maximum and minimum temperature in the summer are 42° and 19 C° and in winter 21° and 3° C, respectively, The relative humidity ranges from 27 to 85 and annual precipitaion is about 204 mm.

Collection techniques, Collection and dissection of sand-flies were done once a month during 7-10 days period, using the following methods.

CDC light trap. Three light traps were used in this program, 2 of which were suspended from trees situated between outdoor resting places and human dwellings the other one was suspended from the ceiling in a house with a VL patient, Light traps were operated from sunset to sunrise (18.00 to 6. 00 hrs.).

Aspirator. In houses sand-flies were collected with aspirator and then were blown into holding tubes (WHO test kit for mosquitoes) with their tops covered by a fine mesh to keep them within.

Sticky oil traps. From outdoor and indoor resting places sand-flies were collected by sticky oil traps. In this method, traps were installed after sunset and were collected before sunrise.

RESULTS AND DISCUSSION

Altogether 27 *Ph. alexandri*, 34 *Ph. sergenti*, 59 *Ph. papatasi* and 150 *Ph. major* collected by different methods were dissected during the period of October - November 1991. The results of the dissection is shown in table 2 and only *Ph. major* showed natural leptomonad infection. During this study, 5 of 150 *Ph. major* dissected were with flagellates (3.3 %). The 20 aspirator collections yielded one (5 %) with leptomonad infection. 130 female *Ph. major* were caught by light traps from outdoor resting places, within 100 meters of houses with VL patients, out of which 4 had flagellate infection (3 %). Leptomonads were observed in the gut, oesophagus and head. These leptomonads were injected into hamster to determine their pathogenicity and to isolate the strain for characterization. The results will be reported later.

Phlebotomus major has a wide distribution from Morocco to southeast China, (Lewis 1982). It is a main vector of VL in Greece (Leger et al. 1979) and is also considered to be a vector of VL in other countries in the Mediterranean basin (Hoogstral et al. 1969).

In Iran *Ph. major* was first reported from northern part (Pervomaniski, 1948) and later from other parts of Iran (Mesghali, 1961; Nadim et al., 1968; Seyedi Rashti, 1971 and Javadian et al., 1975), also it has been found in all areas where human cases of VL have been reported. On the basis of epidemiological evidence it was reported that *Ph. major* is suspected to be the main vector of VL in Iran (Nadim et al., 1978).

Our recent investigation involving collection and dissection of *Ph. major* in 1991 showed for the first time a rather high natural leptomonad infection of this species in the endemic focus of VL in Ghir (Fars province) south of Iran.

Table 1-Age distribution of 117 cases of kala - azar seen in Ghir Health Center from 1982-1989

Age	Year							
	1982	1983	1984	1985	1986	1987	1988	1989
0-1	-	-	-	2	-	-	1	1
1	3	-	-	2	4	3	2	5
2	-	1	-	1	-	7	12	22
3	-	-	-	1	-	3	14	8
4	-	-	-	1	2	1	7	3
5	-	-	-	-	-	-	5	2
6-9	-	-	-	-	-	1	-	3
Total	3	1	-	7	6	15	41	44
Incidence								
per/ 10000	4.2	1.2	-	8.1	6.8	16.4	43.5	45

Table II-Natural leptomonad infection of sand-flies collected from outdoor and indoor resting places in Ghir (Fars province) 12 October - 17 November 1991

species	number dissected	<i>No.positive for leptomonad</i>			
		T	G	O	M
<i>Ph.alexandri</i>	27	-	-	-	-
<i>Ph.sergenti</i>	34	-	-	-	-
<i>Ph.papatasi</i>	59	-	-	-	-
<i>Ph.major</i>	50	5	5	3	3

T:total, G: gut, O:oesophagus, H: head

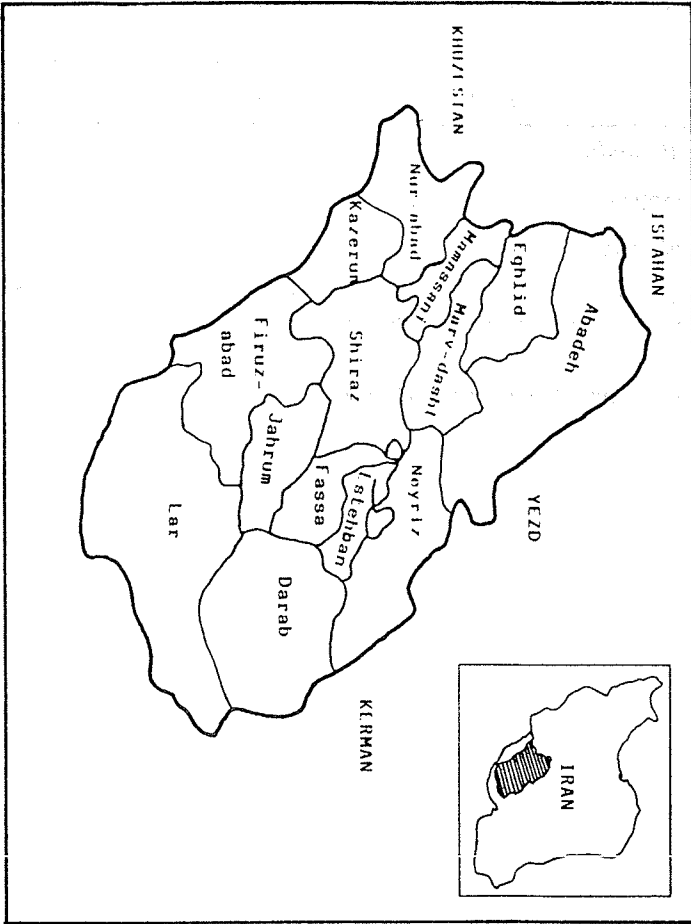


Fig. 1 - The map of Fars province, Iran

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