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Species of Phlebotomine sand flies detected in Galicia (NW Spain)

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Background

Leishmaniosis caused by *Leishmania infantum* is a parasitic zoonotic disease transmitted by the bite of phlebotomine sand flies. These hematophagous insects are frequently described in warmer regions (in tropical and subtropical regions between 50°N and 40°S), including different countries in Europe mainly localized in the Mediterranean region as Croatia, Greece, Italy, Spain, and Portugal [1]. The epidemiology of this vector-borne disease involves connections between the environment, the host, the parasite, the vector, and the climate [2]. During the last years, changes in weather conditions seem to improve the presence of vectors of emerging diseases in different areas. The aim of the current study was to provide information about the species of sand flies present in Galicia (NW Spain).

Materials and methods

Entomological surveys were done from March to November 2019-2022 in three stations, two located in an area under a Mediterranean hot-summer (Csa) climate, in a private house with dogs and a dog-kennel, respectively. The other station was placed on a cattle farm in an area under a Mediterranean warm-summer (Csb) climate. Sampling consisted of two CDC light traps (LT), monthly placed for two consecutive days every year, and being replaced every morning. Insects were classified according to morphological keys.

Results

Specimens of phlebotomine sand flies were collected from June to September, and classified into *Phlebotomus perniciosus* and *P. ariasi*, together with *Sergentomyia minuta* (Table 1). Regarding the year distribution, the total number of captures decreased throughout the investigation, and 29 - 55% of the specimens collected were identified as *P. pernicious,* 14 - 36% as *P. ariasi*, and 9 - 43 % as *S. minuta*. According to the climatic areas, the highest presence of *P. perniciosus* was recorded in Csa zones (48%), and *P ariasi* and *S. minuta* in Csb (35% and 30%, respectively).

Conclusions

The presence of competent vectors in areas under different climatic types recommends a more profound investigation of the vector´s seasonality and activity to gain information on the possibility of transmission of *Leismania infantum* in NW Spain.

Table 1: Phlebotomines captured per year according to the climatic areas.

Climatic Area	Phlebotomine species	Year				Total
		2019	2020	2021	2022	
Csa1	*P. perniciosus*	11	6	2	3	22
	P. ariasi	6	2	3	2	13
	S. minuta	2	5	3	1	11
	Total	**19**	**13**	**8**	**6**	**46**
Csa2	*P. perniciosus*	11	4	4	1	20
	P. ariasi	7	1	3	1	12
	S. minuta	1	5	3	1	10
	Total	**19**	**10**	**10**	**3**	**42**
Csb	*P. perniciosus*	2	2	1	2	7
	P. ariasi	3	1	2	1	7
	S. minuta	1	2	3	0	6
	Total	**6**	**5**	**6**	**3**	**20**
Total	*P. perniciosus*	24	12	7	6	49
	P. ariasi	16	4	8	4	32
	S. minuta	4	12	9	2	27
	Total	44	28	24	12	108

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