

## COMUNICACIONES BREVES

ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLA SICILIA "A. MIRRI" PALERMO, ITALY

### ***Leptospira interrogans* survey by PCR in wild rodents coming from different urban areas of Palermo, Italy**

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#### SUMMARY

DNA extracted from the kidneys of rodents captured in different urban areas of Palermo, Italy, had been analysed for the presence of pathogenic *L. interrogans sensu latu* DNA. PCR analysis had shown that in rodents captured close to green areas and small river up to 40 % animals give positive PCR results. Not many cases of human leptospirosis are reported in Sicilian island in which hot season is usually dry. But considering climate change toward subtropical aspect in Sicily, with hot humid summer and sudden thunderstorm, screening for *L.interrogans sensu latu* prevalence can be useful for leptospirosis risk analysis on human population.

**Key words:** *Leptospira*, PCR, rodent reservoir, Palermo city.

Rodents are important animal reservoirs for leptospirosis and can eliminate a large number of bacteria through the urine.<sup>1</sup> These animal reservoirs are the major responsible for severe human leptospirosis epidemic in countries with favourable climatic conditions such Nicaragua, Brasil, India.<sup>2</sup> In Italy not many human leptospirosis cases are reported each year and majority of cases are located in the most northern regions of the country, often connected with contaminated water.<sup>3</sup>

Sicilian island is not very much involved in human cases of leptospirosis probably because hot season is usually quite dry. Climate change with more humid and hot summer is already affecting some disease prevalence in Sicily with persistency

of animal disease, such as blue tongue virus, previously confined in more tropical areas.<sup>4</sup>

The main goal of this work is the analysis for *L. interrogans* infection on rodent population in different areas of the city of Palermo, to estimate prevalence of infected reservoirs and a correct risk assessment on human population in urban areas.

Several rodent traps in different urban area had been located for 1 year. Kidneys from the captured animals had been analysed for *Leptospira* isolation and PCR analysis.

DNA extraction and PCR conditions had been performed as described.<sup>5</sup>

PCR on DNA from 8 other saprophytes serovars resulted negative, confirming pathogen

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specificity of PCR 16S rRNA. The analysis on rats and mice coming from different areas of the city of Palermo showed that the highest positive percentage had been shown in rats captured in the areas of the city close to public garden or green and more natural areas (table).

**TABLE.** Total samples in the different Palermo urban areas: underlined the green areas with the highest percentage of PCR positive animals

Urban areas	Samples No.	Positive	%
Ippomontato	110	39	35,45
Istituto zootecnico	14	3	21,43
Villa Niscemi	15	0	-
Rom camp	28	6	21,43
Kennel "Pagliarelli"	9	4	40
Kennel "Corso dei Mille"	10	1	10
Fish market	8	1	12,5
"Oreto" river	50	19	40

World climate changes and heat diffusion are already a matter of concern for public health issues especially for vector borne diseases.<sup>6</sup> Survey on rodent population by molecular methods had already been performed in a big city like Rome in Tiber riverside.<sup>7</sup>

Considering that climate conditions in Sicily with long summers and springs can be particularly favourable to *L. interrogans*, positive results of more than 35 % for pathogenic leptospira DNA in urban rodents represent a potential risk for human population.

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## Encuesta acerca de *Leptospira interrogans* mediante RCP en roedores salvajes procedentes de diferentes áreas urbanas de Palermo, Italia

### RESUMEN

Se analizó el ADN extraído de los riñones de roedores capturados en diferentes áreas urbanas de Palermo, Italia, en busca de la presencia del ADN de *L. interrogans sensu latu*. El análisis-RCP ha demostrado que en los roedores capturados cerca de las áreas verdes y de los pequeños ríos, hasta 40 % de los animales tienen resultados positivos de la RCP. No se informaron muchos casos de leptospirosis humana en la isla de Sicilia, donde la estación de verano por lo general es seca. Pero al considerar el cambio climático hacia la parte subtropical de Sicilia, con un verano húmedo y caliente y tormentas súbitas, la investigación para la prevalencia de *L. interrogans sensu latu*, puede resultar útil para un análisis del riesgo de leptospirosis en los humanos.

**Palabras clave:** Leptospira, RCP, roedores, reservorios, ciudad de Palermo.

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