



International Conference on Advances in Biotechnology

July 10-12, 2017 Dubai, UAE

Contribution of biotechnology in the molecular diagnosis of cutaneous leishmaniasis at microclimates area of Boulemane and Sefrou provinces, Morocco.

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Leishmaniasis is among the most important emerging vector-borne protozoal diseases in terms of disability adjusted life year (DALY's). In Morocco, 2933 cases of CL were declared in 2015 with fluctuations in the number of cases reported over the years. As with other vector-borne diseases, the geographical distribution of cases suggests that CL transmission is sensitive to vector density which is correlated to climatic conditions. Our study target Boulemane and Sefrou provinces (among the most endemic foci of CL in Morocco) which are characterized by a diversity of microclimates area. The objectives of this study are to (i) determine the impact of the environmental conditions on the distribution of CL in these provinces, and (ii) identify the *Leishmania* species responsible for CL at each microclimate of these provinces using molecular techniques.

Molecular characterization of parasites was performed using a previously described PCR-ITS1-RFLP method. Ordinary least squares regression (OLSR) analysis was performed to study the impact of poverty, vulnerability, population density, urbanization and bioclimatic factors on the distribution of CL in this province.

The molecular identification of *Leishmania* species in Boulemane and Sefrou provinces shows the diversity of species according to different microclimates area. In fact, *Leishmania major* and *Leishmania tropica* was identified in the first province with the coexistence of these two species in the same district. In Sefrou province both *Leishmania infantum* and *Leishmania tropica* are identified. Among several environmental factors included in the study, poverty had the greatest influence on the spatial extension of the disease in these provinces.

To our knowledge, this the first study utilizing molecular techniques to confirm the diversity of *Leishmania* species at different microclimates in these areas. Our findings indicate that the spatial and temporal distribution of CL in Boulemane and Sefrou Provinces is strongly related to poverty, population movement and human behavior.

Biography

Hmamouch Asmae is a PhD student at the age of 27 years in laboratory of Microbial Biotechnology, Sciences and techniques Faculty, Sidi Mohamed Ben Abdellah University, Fez, Morocco. She has published more than 8 papers in reputed journals such as Parasite and vector, Acta tropica and journal of Parasitology and Vector Biology. She has participate in several congress and conference national and international with 4 oral presentation and 8 poster presentation.

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