



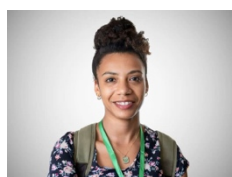
MediLabSecure (Medical Entomology Sector) Newsletter n°37 - September 2024



Dear network members,

*We are glad to announce the **MediLabSecure Medical Entomology Sector Quartely Newsletter** is back! *

NEWS FROM MLS.ENTOMO



> **A new project manager.** Naomi Moumouni Sabatini joined the team on May 1st, 2024, as a project manager. She will be responsible for coordinating the sector, working closely with Dr. Florence Fournet. Naomi holds a degree in International Cooperation and Public Policies and has experience working in support of higher education and research, from Montpellier, France to Port-Vila, Vanuatu. She is committed to applying her expertise to strengthen the MediLabSecure network.

> **Two training in Tunis (May 2024)**

- **Urban-vector mapping training (IRD-Avia GIS).** Fifteen (15) participants from Sahel, North Africa and Middle-East attended this training in Tunisia, which focused on the use of the VECMAP tool. Institut Pasteur de Tunis (IPT) guided the group in Tunis and its surroundings to collect data. The second part of the training will take place online in October 2024.

- **Ticks & tick-borne diseases training (IRD-IPT).** Institut Pasteur de Tunis trained eight (08) researchers and laboratory technicians from Lebanon, Mauritania, and Senegal on ticks, from field collection to identification, including pathogen detection techniques.



> **Equipe Renard has released its 3rd MOOC on knowledge translation "Knowledge brokening" in English.** A free of charge fully online training, which aligns with the MediLabSecure Policy Brief training that took place in Sète (France) in October 2023!

> Two upcoming webinars (October 2024) - **SAVE THE DATES**

- **October 8th, 2024 at 8:00 am GMT: Webinar on ARBOCARTO.** In presence of Dr. Renaud Marti (INRAE) and Dr. Pachka Hammami (CIRAD), discover [ARBOCARTO](#), a software package for predictive mapping of population densities of Aedes mosquitoes.

- **October 22nd, 2024 at 8:00 am GMT: Webinar on Serious Games.** With the participation of colleagues from the French Agricultural Research Centre for International Development (**CIRAD**) and the University of Montpellier (**Expos'UM**), learn more about the value of incorporating these games for communication and awareness in the field of medical entomology.

MEDILABSECURE IN SHORT

> **Global Meeting in France (June 2024).** The MediLabSecure network has celebrated "**10 Years of Achievements in Vector-Borne Diseases Preparedness**" in Paris. This event provided an opportunity for the network to gather and discuss its future. The Medical Entomology sector was represented by fifteen (15) of its members.

> See more on medilabsecure.com

NEWS FROM MEDICAL ENTOMOLOGY WORLD

> **Back to the 1st INOVEC International Conference in Dar Es Salam (Tanzania).** In August 2024, the 1st INOVEC International Conference, part of another European project focused on innovative tools against Aedes borne diseases, was organized by the French National Institute for Research and Development (IRD) and Ifakara Health Institute (IHI). The conference featured three days of rich presentations and discussions on "**Advances in Surveillance and Control Methods for Aedes-Borne Diseases and Urban Vectors**". Our team leader Dr. Florence Fournet took part to this conference: *"It was a nice occasion for the exchange of ideas within the scientific community, welcoming researchers, students, academia, public health professionals, stakeholders, donor agencies, industry representatives, and international organizations dedicated to combating vector-borne diseases. Presentations were focused on the Biology and Ecology of Aedes Vectors, Integrated Approaches to Vector Control, and Innovation in Vector Control with a particular interest in Aedes mosquitoes but also Anopheles stephensi"* she said. Further details (replay, documentary...) will be communicated shortly.

> **8th World One Health Congress (WOHC) in Cape Town, South Africa from 20th to 23rd September, 2024.** MediLabSecure team will be taking part in the congress and two presentations addressing vectors will be given:

- **Abdallah Samy** (Medical Ain Shams Research Institute, Faculty of Medicine, Ain Shams University) on "Mapping the distributional potential of the Crimean-Congo haemorrhagic fever vector *Hyalomma marginatum*".

- **Gorgui Diouf** (Senegalese Institute of Agricultural Research (ISRA) National Laboratory of Livestock and Veterinary Research (LNERV) on "Ticks and Tick-Borne Diseases in Senegal: An ecological niche modeling approach to estimate the spatial distribution of hard-ticks of medical and veterinary importance".

CALLS FOR APPLICATION

African Leishmaniases Consortium call for Fellowships

> **Deadline : September 30th 2024**

ENJOY READING

-Articles

- AJ Trajer, I Hoxha, B Xhekaj, K Platzgummer, V Dvorak, AG Obwaller, J Stefanovska, A Cvetkovikj, J Walochnik, *K Sherifi, E Kniha. [Ecological setting of phlebotomine sand flies in the Republic of Kosovo](#), Heliyon, 2024

Sand flies (*Diptera, Psychodidae*) are the main vectors of *Leishmania spp.* and phleboviruses, with their diseases spreading in the Republic of Kosovo, a country with a humid continental climate. This study examined factors influencing sand fly presence in these regions using advanced environmental and climatic analyses. Results showed that wind speed and temperature seasonality are the main factors limiting their presence. The western plains of Kosovo were identified as having the most diverse sand fly fauna and being most at risk. Two key species, *Phlebotomus neglectus* and *P. perfiliewi*, known vectors of leishmaniasis and phleboviruses, were identified as the most widely distributed.

- D Roiz, PA Pontifes, F Jourdain, C Diagne, B Leroy, AC Vaissière, MJ Tolsá-García, JM Salles, F Simard, F Couchamps. [The rising global economic costs of invasive Aedes mosquitoes and Aedes-borne diseases](#), Sci Total Environ. 2024

Invasive mosquitoes *Aedes aegypti* and *Aedes albopictus* transmit viruses like dengue, chikungunya, and Zika, posing significant public health and economic challenges. A global-scale synthesis of studies from 166 countries over 45 years estimates the minimum economic cost at \$94.7 billion (2022 US\$), though this likely underestimates the true impact. The costs have increased 14-fold, with annual expenses averaging \$3.1 billion and peaking at \$20.3 billion in 2013. Most spending goes toward damage and losses, with limited investment in prevention. The study highlights the urgent need for effective control measures to reduce these economic and health burdens.

- N Mekarnia, *KE Benallal, J Sadlova, B Vojtkova, A Mauras, N Imbert, M Longhitano, Z Harrat, P Volf, PM Loiseau, S Cojean. [Effect of Phlebotomus papatasi on the fitness, infectivity and antimony-resistance phenotype of antimony-resistant Leishmania major Mon-25](#), Int J Parasitol Drugs Drug Resist. 2024;25:100554.

Leishmania major causes zoonotic cutaneous leishmaniasis, typically treated with antimony-based drugs, although resistance and relapses are common. This study compares two antimony-resistant *L. major* MON-25 lines, developed through in vitro Sb(III) drug pressure, to a wild-type line in the natural vector, *Phlebotomus papatasi*. While infection rates were similar in the early stages, resistant lines showed reduced heavy infections and fewer metacyclic promastigotes at later stages. Despite these differences, both resistant lines produced mature infections, suggesting they could still circulate in the field. The resistant phenotype and gene markers remained stable after passage through the sand fly vector.

- Z Gharbi, *A Ouni, G Balti, *A Bouattour, A Chabchoub, *Y M'ghirbi, [First Evidence of Rickettsia conorii Infection in Dogs in Northern Tunisia](#). Vet. Sci. 2024 ; 11, 402.

A cross-sectional study conducted between April 2021 and June 2022 investigated the role of dogs in the spread of rickettsiosis in Tunisia. Blood samples from 136 dogs were tested for IgG antibodies against *Rickettsia conorii* using an indirect immunofluorescence test, and ticks were analyzed by qPCR. The seropositivity rate among the dogs was 55.14%, with 53% of seropositive dogs showing symptoms like fever, anorexia, thrombocytopenia, and anemia. No *Rickettsia* DNA was found in the dogs' blood, but *R. conorii* subsp. *raoultii* was detected in 7 of the 51 tick pools collected. Raising awareness among dog owners about controlling tick infestations is crucial to prevent zoonotic transmission.

-Conference Papers

- *R Danielyan, G Grigoryan, *AF Manucharyan, G Melik-Andreasyan, [**Results of field and laboratory studies of rodents and their ectoparasites in Armenia**](#), Conference: ASM Microbe 2024, Atlanta, GA, USA, June 2024

The National Center for Disease Control and Prevention (NCDCP) in Armenia conducts annual field research to study rodents and their ectoparasites, which may host or transmit pathogens like *Yersinia pestis*, *Francisella tularensis*, *Yersinia enterocolitica*, *Erysipelothrix rhusiopathiae*, and *Leptospira*. In 2023, data collected from March to November across 190,000 hectares were analyzed using ArcGIS to enhance research planning and reporting. Laboratory tests on 9,000 rodents, 37,000 fleas, and 21,000 ticks detected Leptospirosis, *Y. enterocolitica*, Erysipeloid, and *F. tularensis* at multiple sites. The results helped identify risk zones and create maps for targeted intervention. This collaborative approach guides yearly action plans and preventative measures to reduce infection risks in humans and animals.

* MediLabSecure Network Members

If you have any suggestions or information you wish to share, please let us know and send an email to the discussion list [**mls.entomo-all@listes.ird.fr**](mailto:mls.entomo-all@listes.ird.fr).