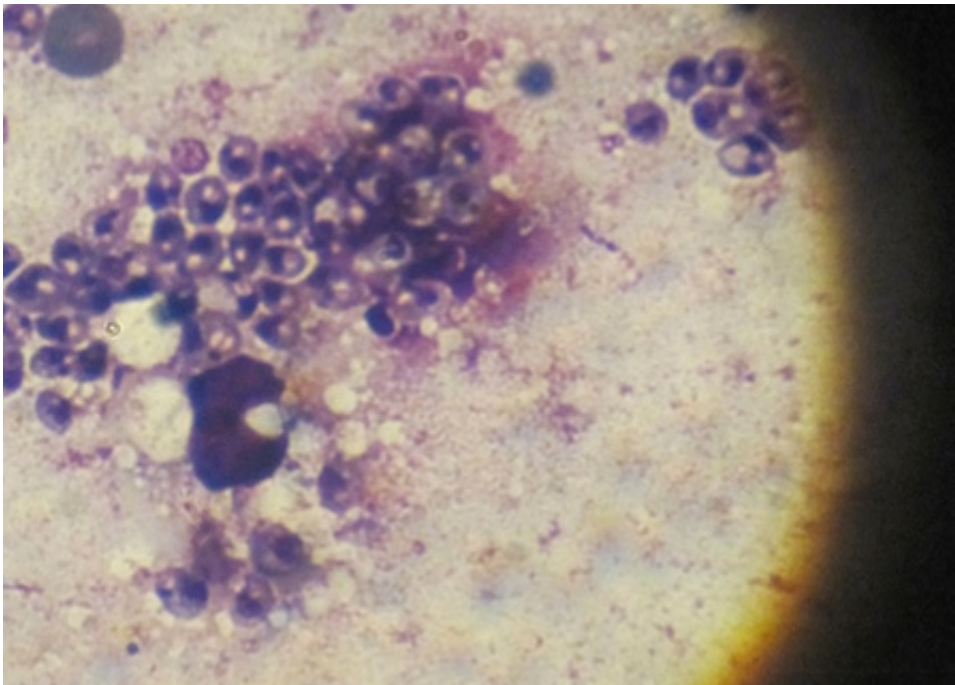


# Parasite surveillance to support policy against drug resistance

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Leishmaniasis is a tropical disease known in Europe because it affects dogs. It is caused by the *Leishmania* parasite carried by sandflies. However, several types of the parasite also affect humans in several regions in the world. The mortality rate is about 70,000 per year and the hotspots are in the poorest regions of the Indian subcontinent, East Africa and Latin America. For example, visceral leishmaniasis (VL), the more dangerous form, affects internal organs. One of the main

challenges in dealing with VL is keeping track of the (sometimes drug-resistant) genetic variants of the parasite. Now, the EU-funded KALADRUG-R, completed in 2013, has developed new surveillance tools for monitoring drug resistance and treatment in VL on the Indian subcontinent.

"We found some simple molecular tools which allow you to detect the different genetic varieties of the Leishmania parasite. And some of these varieties are related to [drug resistance](#)," says project coordinator Jean-Claude Dujardin, a medical researcher at the Institute of Tropical Medicine in Antwerpen, Belgium.

Most healthy people resist infection when bitten by a sandfly carrying the [leishmania parasite](#). But people suffering from poverty and malnutrition are much less able to fight it off. Nonetheless, people in wealthier regions can also be targeted. "In Europe, leishmaniasis has been endemic for centuries and essentially affecting children," says Dujardin. Immune suppression has also been shown to play a role. "More recently, immunosuppressed people, infected with HIV for instance, are also victims of the disease," Dujardin tells youris.com.

The project developed a specific tool for surveillance, the detection of the incidence of different genetic varieties of the parasite in different regions. This is important because it allows the development of local drug policies. For monitoring the outcome of treatments of VL patients, project researchers introduced a registration system that records the efficacy of the drugs used. By combining this information with the surveillance results, Dujardin hopes that local medical authorities will be able to eradicate the Leishmania parasite in a few years. On the Indian subcontinent, for example, a regional elimination programme using control of the disease vector—sandflies—is now underway. This also uses drug therapies that are fine-tuned to fight the drug-resistant varieties of the parasite. The goal is to eliminate leishmaniasis by 2015.

One expert is interested by the project's approach. "The main strength of the project is molecular genetics. And the work they have done, looking at the historical spread of leishmaniasis is very interesting," says Vanessa Yardley, a medical researcher at the London School of Hygiene and Tropical Medicine, UK.

However, she does not believe that the parasite will be eliminated soon because of a lack of political will. "It is not because of the lack of tools, but it is how these tools are implemented. There is a distinct lack of coordination of efforts in India. And it is very difficult to get the actual picture of the incidence of VL," she tells youris.com.

Another expert agrees that the surveillance data gathered by the project are important. Alia Benkahla, a biostatistician at the Pasteur Institute in Tunis, in Tunisia, reports that for the cutaneous form of leishmaniasis, patients in Tunisia are sometimes treated with drugs that do not work because the type of drug resistance in the parasite was not known. But she also thinks the eradication of the parasite will be problematic. "Eradication of the parasite will be possible if one uses insecticides that kill the vector. But this will bring toxic products in the environment and cause other problems," Benkahla tells youris.com.

Simon Croft, dean of the Faculty of Infectious and Tropical Diseases, also at the London School of Hygiene and Tropical Medicine, UK, agrees that the project has done interesting research. "It provided us with a new understanding of the variety of [parasites](#) and their genetic structure. But in terms of actual policy on how to control the disease, that is now up to other people to use this information effectively," says Croft.

Provided by Youris.com

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