

Not all parasites are created equal

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The discovery that some parasites appear to produce more offspring than others offers good prospects in the search for treatments for the tropical disease called schistosomiasis, according to scientists at the Institute of Tropical Medicine Antwerp (ITM), the AfricaMuseum and the KU Leuven.

Schistosomiasis, or bilharzia, is a tropical disease caused by a parasitic worm that infects the intestines and the urinary tract. This illness affects more than 200 million people worldwide, primarily poorer children in sub-Saharan Africa. People become infected when they come into contact with water in lakes or rivers that is infected with the larvae of these worms.

Until recently, it was thought that the severity of the infection was mainly related to the degree of exposure to the parasite and to the immune system of the patient. Scientists from the ITM, the AfricaMuseum and the KU Leuven were the first to discover that this story is not complete. In the scientific journal *International Journal for Parasitology*, the researchers wrote that the clinical outcome of the disease also depends on which variant of the parasite the patient is exposed to. This new discovery could advance the search for new vaccines and medicines against this tropical disease.

Much of the research into tropical diseases focuses primarily on humans. But in recent years, new technologies have made it possible to study the parasites themselves in greater detail. As a result, the DNA of each tiny schistosome parasite larva - a tenth of a millimetre long - can be analysed.

The ITM, the AfricaMuseum and the KU Leuven joined forces and to address this problem, each bringing to the table their own specific knowledge domain related to epidemiology, genetics and ecology. After analysing more than 1500 parasite samples from Senegalese school children, they concluded that some parasites with certain gene mutations appear to produce more offspring than others. An important finding, since the number of eggs that the worms produce determines how sick the patient becomes. Therefore further research into medicines or vaccines that can influence this gene is warranted. This is a challenging endeavour because schistosome parasites are genetically very diverse, and they evolve quickly. The next step for the Belgian researchers is to validate the results in the laboratory.

The publication in the *International Journal for Parasitology*: Evolutionary epidemiology of schistosomiasis: linking parasite genetics with disease phenotype in humans (Huyse et al., 2018):

<http://www.sciencedirect.com/science/article/pii/S0020751917303211?via%3Dihub>