

New strains of parasites identified

January 12 2015



McGill researchers have discovered there are three distinct groups of whipworm parasites, and that only one of the three groups can move between humans and non-human primates. Credit: Ria Ghai

About 600 million people around the world live with whipworms. Most are children in the developing world, whose physical and mental development is stunted by these gastrointestinal parasites. The whipworms affect their ability to learn and therefore have a long-term

impact on the social and economic situations of some of the world's poorest people. Although the whipworm species *Trichuris trichiura* is known to inhabit both non-human primates and humans, little is known about the parasite. Indeed, until a recent study by Ria Ghai, a doctoral student in biology at McGill, it was widely assumed that a single species was capable of infecting both primates and humans. But Ghai has discovered that there are three genetically distinct groups of whipworms - and only one of the three appears to be transmissible between humans and non-human primates. It is important information for public health officers around the world.

Ghai's research, published recently in *PLoS Neglected Tropical Diseases*, was done in the rainforest of Kibale National Park in southwestern Uganda, which has one of the largest concentrations of primates in the world. The trees are alive with monkeys, and include [endangered species](#) such as the red colobus monkey, the eastern chimpanzee, and the rare l'hoest's monkey as well as more common [species](#), like baboons. In all, there are 13 different species of primates within the park. But the park is an island of forest within one of the most densely populated agricultural regions in East Africa, with a population of 300-600 people per square km. And there is increasing [human](#) pressure on limited land and growing interaction between the two groups.

"The park has been a protected space since 1993, but for a very long time people have been going into the forest to gather wood to burn and banana leaves and grasses to weave with, as well as to hunt bush meat, and it's hard to change habits when people are in such need," says Ghai. "The monkeys also come out of the park to raid the fields for maize and sweet potatoes. So in a place where there is little running water to wash either food or hands and where people walk barefoot wherever they go, it is not surprising that there is an exchange of fecal matter between humans and primates that has led to the transmission of whipworms."

Although researchers and medical people have known about whipworms for a long time, people have paid little attention to the transmission of the parasite between primates and humans until now. Ria Ghai's molecular analysis of the fecal matter from various species, including humans, suggests that there is one strain of whipworms t found only in humans, another strain which is only found in either black-and-white or [red colobus monkeys](#), and a final strain found in both humans and [primates](#).

"What this shows us is that we have been underestimating biodiversity," says co-author Prof. Colin Chapman, from McGill's Department of Anthropology and School of the Environment who has been working in the area for many years. "There are far more species of parasites around than we had expected, and we hope this new information will be useful both for conservationists and for people working in health policy."

More information: *PLoS Neglected Tropical Diseases*,
www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0003256

Provided by McGill University

Citation: New strains of parasites identified (2015, January 12) retrieved 5 May 2024 from <https://medicalxpress.com/news/2015-01-strains-parasites.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--