

On the Possible Role of Onchocerciasis Treatment Exclusion Group and Refusals as Reservoir Host Towards the Development of Drug Resistance

Ikechukwu Chiwueze Oguoma¹, Thomas Mbah Acho¹,
Chinyere Nneka Ukaga²

¹Department of Mathematics and Applied Mathematics
Faculty of Natural and Agricultural Sciences, University of the Free State,
9300 Bloemfontein, South Africa

ikeoguoma@yahoo.com, achotm@ufs.ac.za

²Department of Animal and Environmental Biology
Faculty of Science, Imo State University, P.M.B. 2000, Owerri, Nigeria
chinyukaga@yahoo.com

keywords: Onchocerciasis; hyper-endemic communities; exclusion group; refusals; drug resistance

In this study, we introduce and analyze two-structured model for the possible role of Onchocerciasis treatment exclusion group and the refusals as reservoir host towards the development of drug resistance. The model assumes that the rate of infection by the female blackflies and the rate of recovery of infected individuals depends on the Community Directed Treatment with Ivermectin (CDTI). Our result shows that the elimination of Onchocerciasis from hyper-endemic communities depends solely on the treatment of both the exclusion and refusal groups as well.