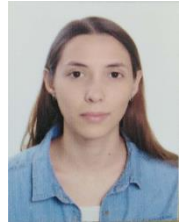


Mosquito-larvicidal activity of bacterial extracts produced by Colombian strains

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Abstract

Mosquito-borne diseases have become a health problem due to their serious economic and social implications. Mosquitoes can transmit more than 30 viruses as dengue, zika, yellow fever and chikungunya. Dengue is one of the most common human diseases transmitted by mosquitoes. It is estimated that more than 2.5 billion people are at risk and 390 million infections occur annually in around 125 countries that are exposed due to their location in tropical and subtropical regions (Marques et al., 2017). In order to control mosquito populations various practices have been used in endemic areas, including the use of chemical insecticides, which has been one of the main strategies. However, the application of synthetic insecticides cause problems as development of resistance, adverse effects on beneficial organisms destroying the natural and fundamental balance of ecosystems, not to mention even the damage caused by environmental pollution. The aim of this study was to identify larvicidal activity of extracts produced by bacteria isolated from different sources in Colombia. A total of 105 extracts produced from the same number of bacteria were evaluated for their activity against larvae *A. aegypti* and *A. albopictus* using standard protocols. Six extracts showed relevant activity (more than 50% of mosquito larvae were killed after 48 hours), two of them showed to be actives against larvae of *Aedes aegypti* and four against larvae of *Aedes albopictus*. An extract produced by a Colombian strain of *Bacillus atrophaeus* was selected for further studies. In order to increase the production of active substances, different culture media were evaluated. A culture media containing glycerol as carbon source was selected. Bacterial extracts are a good source for the search of new strategies in the control of mosquitoes. Further studies to determine the compound responsible for the insecticidal activity are in progress.

Biography:

Manuela Agudelo Restrepo has completed his studies in biological engineering at the National University of Colombia, Medellin in 2019. She is studying a Master in Biotechnology at the same university. She has participated in several research projects carried out by the research group in Active Substances and Biotechnology to which she belongs since 2016. She is an outstanding student.

Speaker Publications:

1. Agudelo-Restrepo, Manuela & Hernández-Quesada, Martha & Sanabria-Duran, Edinson & Uribe-Soto, Sandra & Ortiz-Reyes, Adriana & Romero-Tabarez, Magally. (2020). Assessment of mosquito insecticidal activity of bacterial extracts produced by Colombian strains. Access Microbiology. 2. 10.1099/acmi. ac2020.po0037.

49th [World Congress on Microbiology](#); Webinar- June 15-16, 2020.

Abstract Citation:

Agudelo-Restrepo Manuela, Mosquito-larvicidal activity of bacterial extracts produced by Colombian strains, Microbiology 2020, 49th World Congress on Microbiology; Webinar- June 15-16, 2020.

<https://europe.microbiologyconferences.com/abstract/2020/mosquito-larvicidal-activity-of-bacterial-extracts-produced-by-colombian-strains>

