



## A retrospective and prospective study on *Plasmodium falciparum* and *Plasmodium vivax*: the case of Adama town, East Shoa Zone, Oromia, Ethiopia

Hunduma Dinka<sup>1</sup>, Temesgen File<sup>1</sup>, Lemu Golassa<sup>2</sup>

<sup>1</sup>Department of Applied Biology, Adama Science and Technology University

<sup>2</sup>Aklilu Lemma Institute of Pathobiology, Addis Ababa University

### Abstract:

Malaria is more often considered a problem of the rural poor and the disease has been overlooked in urban setting for centuries due to the assumption that economic development in urban area results in better life conditions like improved housing, drainage system and environmental changes that makes urban areas not conducive for breeding of malaria vector. But, for many African countries including Ethiopia, in most urban areas, although there are rapid developments of urbanization, they are characterized by poor housing, lack of sanitation and drainage of surface water that provides favorable conditions for vector breeding and increase human vector contact. This creates heterogeneity of malaria cases in urban setting making the local control efforts a challenging task. Therefore, this study was initiated to investigate the situation of malaria in Adama town, Eastern Shoa Zone, Oromia, Ethiopia. A retrospective study on In-Patient Department (IPD) and Out-Patient Department (OPD) data was conducted on malaria cases in Adama city from 2013 to 2018. To supplement the retrospective data socio-demographic characteristics of malaria patients screened during the prospective study (from April to July 2018), was also included. The prospective data collected were from malaria patients screened from seven (7) selected health facilities in the city. Climatological data (temperature and relative humidity) recorded during the prospective study period was taken from the data base of Adama meteorology center to observe its relation with malaria cases in the city and data were analyzed by using SPSS version 21. OPD retrospective data analysis indicated that adolescents and adults ( $\geq 15$  years of age) were most affected by *Plasmodium vivax* (43.5%) and *Plasmodium falciparum* (31.7%) whereas from the total of 2,590 febrile patients screened for malaria from seven selected health facilities during the prospective study 97/2,590 (3.7%) of them were confirmed malaria positive. *P. vivax* was found to be a predominant species in causing malaria burden in the city exhibiting less seasonal occurrence. A rise in



environmental temperature and humidity during the prospective study coincides the occurrence of malaria cases in the city. Malaria is endemic to the city showing a public health problem. The productive group of the community adolescents and adults were most affected, exacerbating poverty *P. vivax* contributed to the highest malaria burden in the city.

### Biography:

Hunduma Dinka Terefe is a bio-technologist with a disease control specialization background by profession and currently works at one of the two science and technology universities in Ethiopia. He holds a PhD in Biotechnology specialization in Genomics from Konkuk University, South Korea and MSc in Disease Control from Institute of Tropical Medicine, Belgium. Hunduma has four years of research experience in one of the regional research institute as a researcher on infectious disease and research division head and seven years of experience in teaching and research in Adama Science and Technology University. He has also been advising PhD and MSc students during their dissertation and thesis work on infectious diseases molecular epidemiology and health biotechnology in general. He presented several abstracts and gave speech on national and international conferences. Hunduma grew up in one of the remote villages of Ethiopia and is passionate about studying and controlling infectious diseases and health biotechnology in general.

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