ABSTRACT

Rift valley fever virus (RVFV) is the cause of economically important disease called Rift Valley Fever in cattle, sheep and goats as well as humans. The disease is notifiable in Kenya. This calls for effective control measures, which must be supported by early detection and confirmation of disease. However, the current diagnosis tests of RVFV are laborious, time consuming, and requires specialized equipment, laboratory and trained personnel. This greatly humpers the control of the disease during an outbreak. Great efforts have been employed to improve diagnosis of the disease, a molecular based assay Reverse transcriptase polymerase chain reaction (RTPCR) method for laboratory diagnosis of RVF infection has been developed and validated. However, it is expensive and requires a thermocycler which cannot be readily used in the field. This creates the need to develop cheap, safe and readily available point of care diagnostic kits for the disease. Therefore, the need for development of rapid, cheap, sensitive and specific diagnostic tests against RVFV cannot be underestimated. This project will employ state of art technologies to develop cheap, rapid and lateral flow tests. The developed strips will be available for use by the farmers and local veterinary officer for screening and surveillance of the RVF disease, if adopted by the Kenyan government.

In addition, the study seeks to characterize the disease in terms of distribution patterns of the virus and the vector in Kenya and the role played by the low circulation of virus among animals to its outbreaks. This will help to develop the current RVFV risk maps in Kenya will be useful in designing conditions that favors the RVFV outburst and help predict the outbreaks beforehand. This will in turn help activate rapid response system in time and help avert the disease outbreaks. This, in combination with rapid diagnostic kits, will help develop resilient livestock and boost livestock production, thereby improving the livelihoods of livestock keepers, traders, butchers and the country. Laboratory work will be carried out at KALRO Biotechnology Research Institute, kabete Nairobi. Previous data on distribution of RVFV in Kenya will be obtained from various licensed agencies. Bio-climatic conditions will be downloaded from the website of the Kenya metrological department. For inter-epidemic study blood samples will be collected from the selected counties in Kenya and analyzed at KALRO Biotechnology Research institute laboratories, Kabete, Nairobi.