Virus isolations from mosquitoes collected in three geographically distinct, semi-arid Rift Valley fever epizootic regions, Kenya

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INTRODUCTION

Arthropod-borne viruses (arboviruses) are propagated through biological transmission between vertebrate hosts by haematophagous (blood feeding) arthropod vectors such as mosquitoes, biting midges, sandflies, and ticks (1). Arboviruses are important emerging pathogens of public health significance and have been associated with major outbreaks in East Africa; (2). We conducted mosquito surveillance in the semi-arid regions of Ijara, Marigat, and Mai Mahiu to assess disease risk and identify targets for control.

OBJECTIVE

To determine the presence and circulation of arboviruses, and associated vectors responsible for their maintenance and transmission.

METHODS

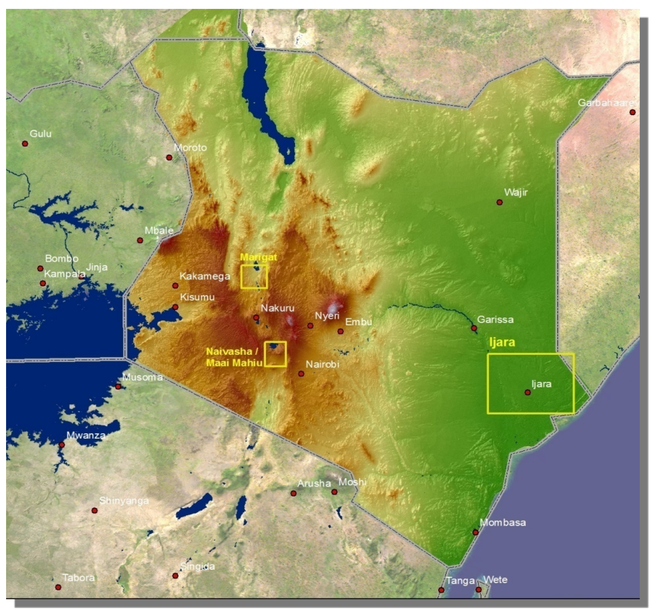
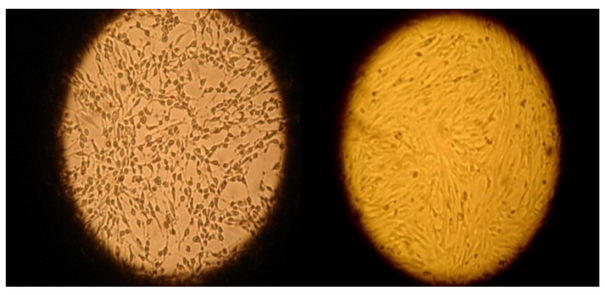
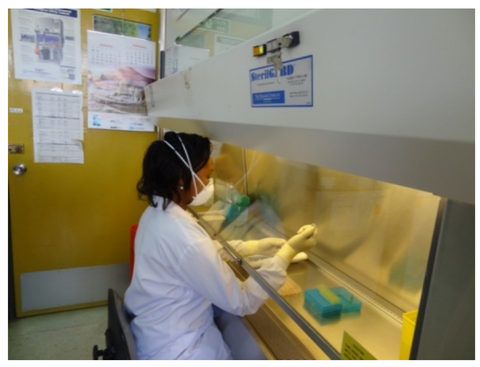


Fig 1: Kenya map showing the study sites

1. Sample collection



3. Observation of cytopathic effect



2. Sample identification and inoculation in Vero cell lines

4. Molecular detection of the virus

5. Virus amplicons sequencing

IMPACT

- Useful information for enhancing differential diagnosis of fever illnesses, and for initiating control measures to reduce vector population; and therefore, virus transmission.
- Suggests the need for longitudinal surveillance to determine seasons of increased risk so as to advice on appropriate timing for control.

RESULTS

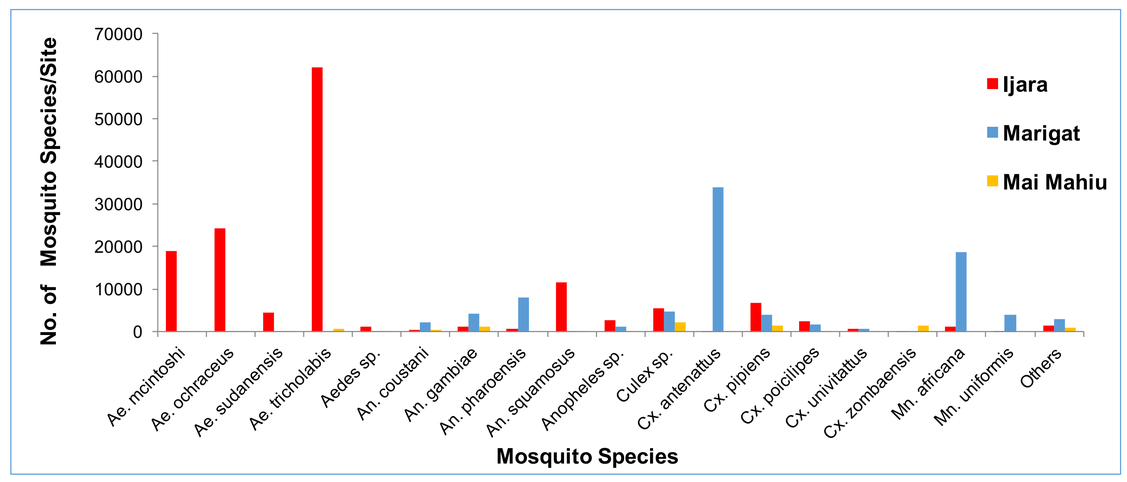


Fig 2: Diversity and abundance of arbovirus vectors in RVF epizootic regions in Kenya

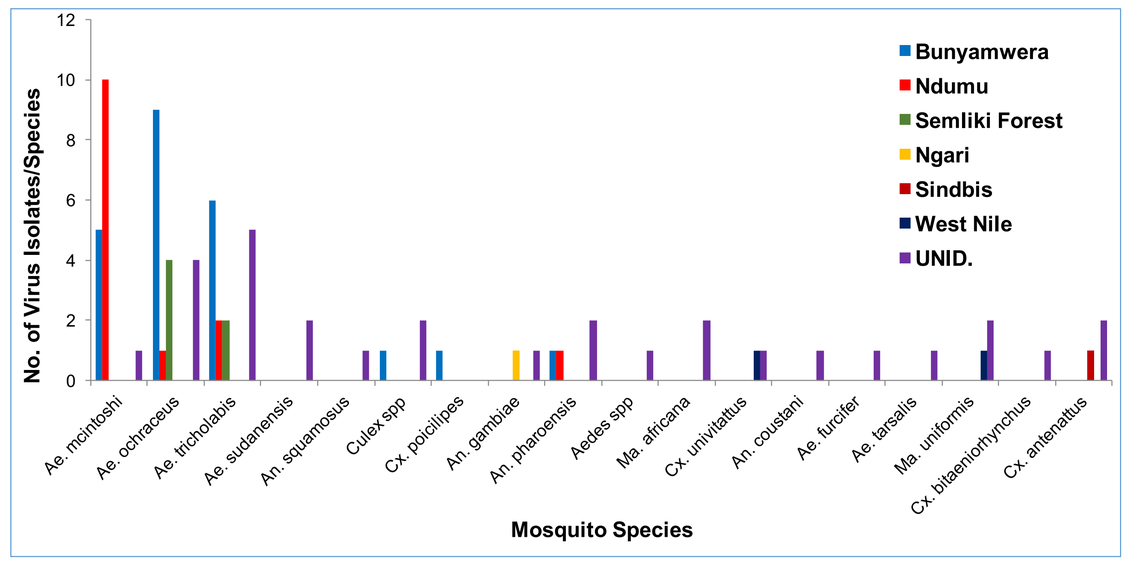


Fig 3: Number of virus isolates per mosquito species

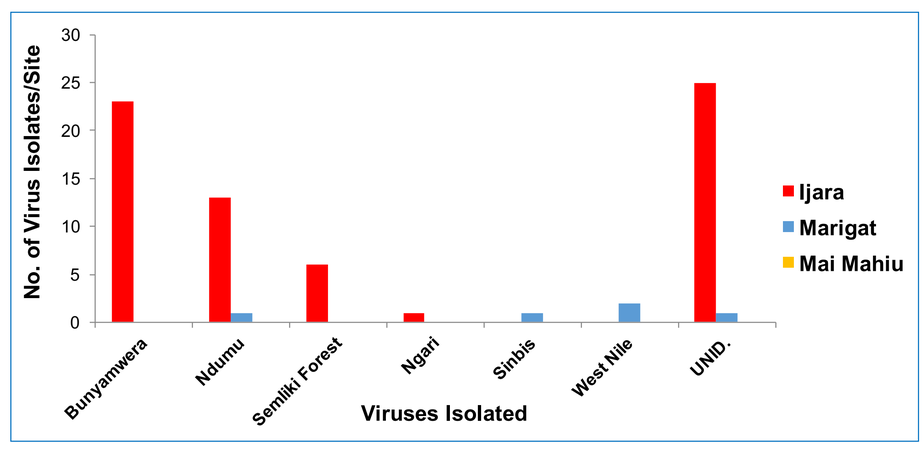


Fig 4: Number of virus isolates per mosquito species

CONCLUSION

- The data obtained provides a better understanding of the geographical range of arbovirus risk in parts of Kenya, highlights the diversity of pathogens in circulation and the vector species involved.
- These arboviruses could account for some of the febrile illnesses of unknown etiology observed in these regions, and may have potential for further expansion.
- More intense circulation of arboviruses in Ijara compared to Marigat or Mai Mahiu implies that the intense pastoralism and interaction with wildlife serves to amplify the viruses.

REFERENCES

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