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## **Application of chemical ecology for vector based disease surveillance; case for rift valley fever monitoring**

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The Rift Valley fever (RVF) is of veterinary and public health challenge with severe economic impacts owing to frequent outbreaks in recent times in East Africa especially in Kenya. Despite this, important knowledge gaps persist in our understanding of the disease epidemiology and vector ecology which has affected our ability to ensure prediction and preparedness against outbreaks. Such programs would be best served by efficient surveillance and disease monitoring tools. We present advances in the development of improved semiochemical based trapping tool for monitoring populations of RVF vectors based on an understanding of the cues used by adult female RVFV vectors for host-location for a blood meal from diverse livestock hosts (goat, sheep, cow, donkey) including humans. We use a range of chemistry techniques (coupled gas chromatography-electroantennographic detection (GC-EAD), coupled gas chromatography-mass spectrometry (GC-MS)) and field assays, and show that host derived volatiles can be exploited in traps to increase captures of RVF vectors. In addition, genetic studies of the primary RVFV vectors (*Aedes mcintoshi* and *Ae. ochraceus*) and how it relates to the outbreak pattern of the disease in Kenya will be presented.