

## **Abstract**

Honey bees (*Apis mellifera*) provide critical pollination services and livelihood for small-holder farmers in Kenya, thus contributing to nutrition and food security. While honey bee colonies in North America and Europe are in decline due to parasites and pathogens, little is known about the status and effects of the honey bee pathogens and pests on the honey bee populations in Africa. A nationwide survey was conducted in 2012/2013 across eight agro-ecological zones to assess the presence of *Nosema* microsporidia and quantify the levels of infection. *Nosema* microsporidia occurred throughout the eight ecological zones. Infection levels were negatively correlated with altitude, suggesting that environmental factors may play a role in the honey bee host-pathogen interactions. Infection levels were higher in the coastal region than in the interior. There was no evidence of colony size reduction in areas where the *Nosema* microsporidia was in abundant. The results suggest that *Nosema* could be an exotic pathogen and may have been recently introduced in Kenya and is spreading to all ecological zones. However, its impact on honey bee populations is not yet known. This study thus provides baseline data for further detailed survey and analysis of the impact of this pathogen to the Kenyan honey bee colonies with a view of establishing any form of resistance mechanisms of the Kenyan honey bee colonies compared to the European honey bee colonies.