



Influence of geographic location on the incidence and diversity of plant-parasitic and free-living nematodes in winter season

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Introduction

Cassava is a primary source of food for many households.

Both roots and leaves of the crop are rich in minerals and vitamins.

Plant parasitic nematodes play an integral role.

Several factors such as geographic location, which translates to soil and habitat characteristics influences nematode abundance and their composition.

Objective: To determine the influence of geographic location on the abundance and diversity of nematodes associated with cassava.



Figure 1: Harvested cassava tubers



Materials and methods

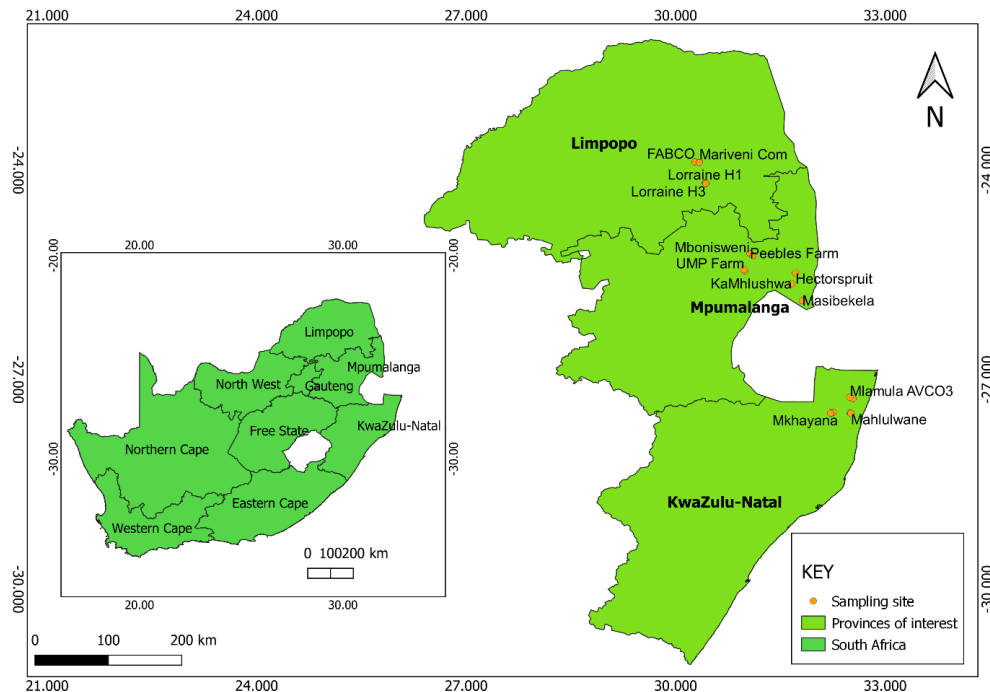


Figure 2: Sample collection sites in KwaZulu Natal, Mpumalanga and Limpopo provinces.
(compiled by M. Timana)

20 localities: Limpopo (7 localities), Mpumalanga (7 localities), and KwaZulu Natal (6 localities) provinces.

Composite samples (1 kg) and cassava roots (500 g).

Soil: Centrifugal and sugar floatation.

Roots: Blending and maceration.

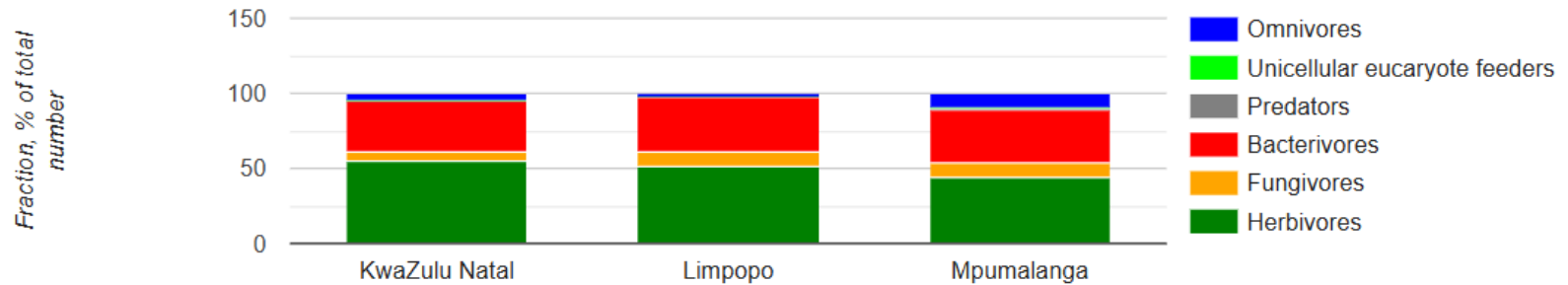
Nematode species counted and identified to genus level using guiding keys.

Data analysis: ANOVA and NINJA.

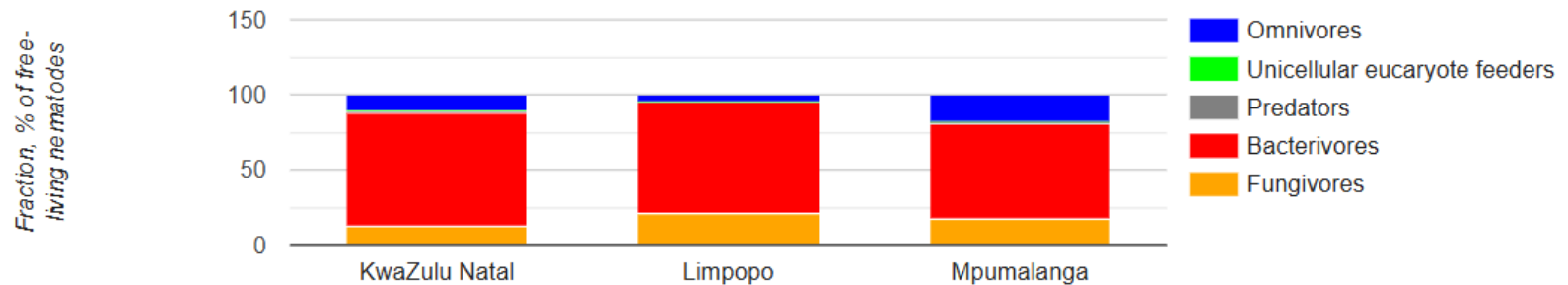


Results and discussions

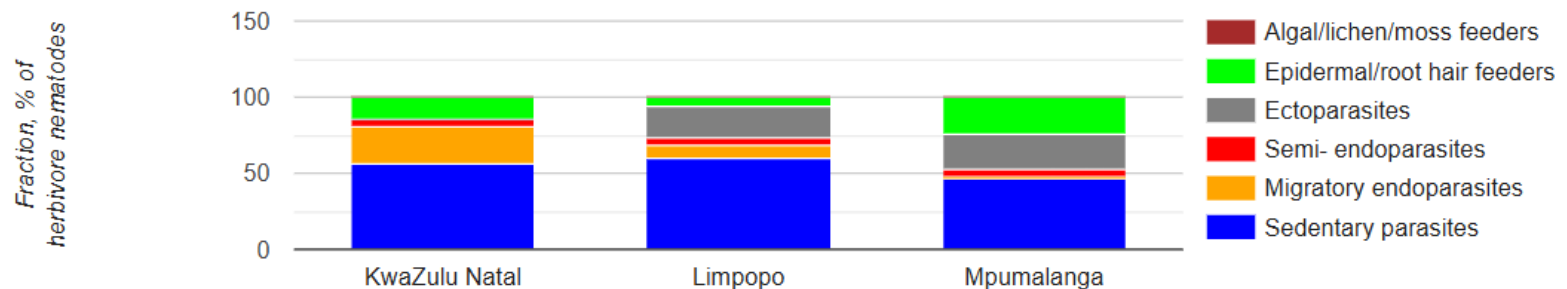
Feeding type composition of nematode assemblage



Feeding type composition of the free-living nematode assemblage

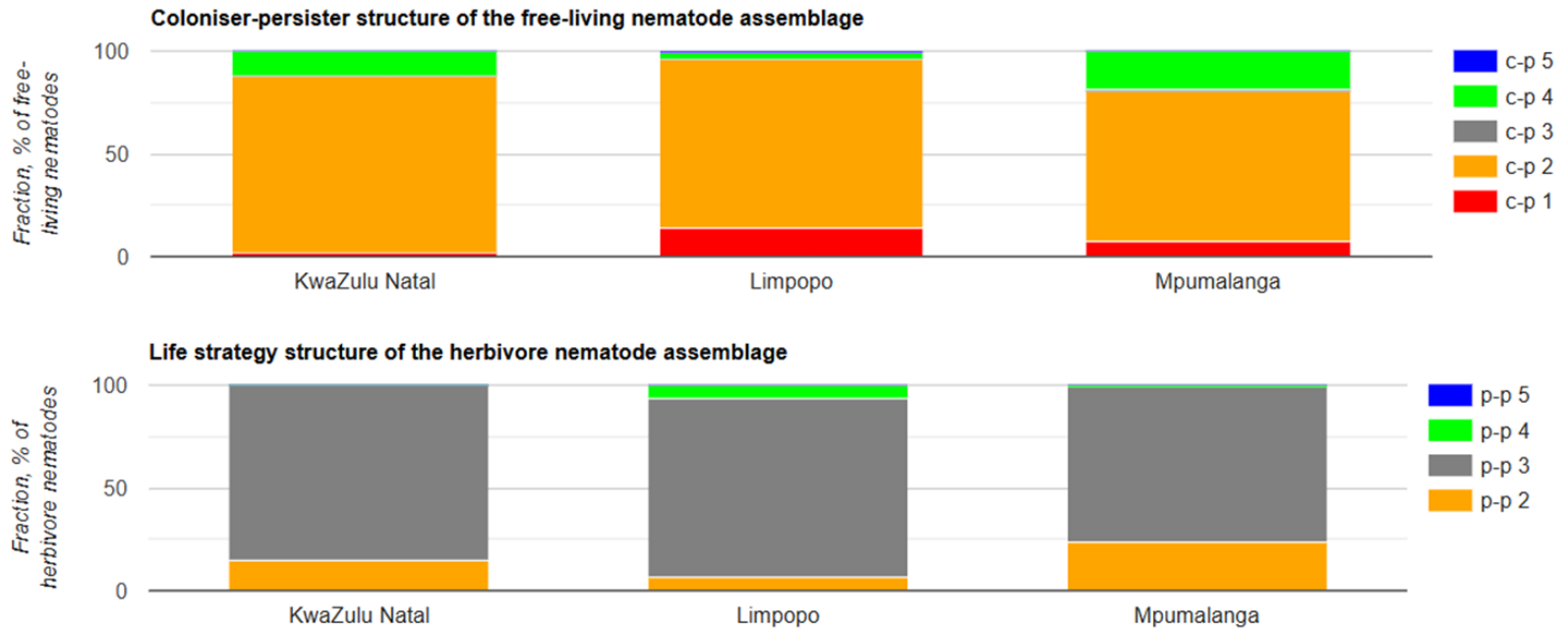


Feeding type composition of the herbivore nematode assemblage





Results and discussions





Conclusions and recommendations

28 nematode genera were found.

Plant parasitic nematodes such as *Helicotylenchus*, *Criconemella*, *Ditylenchus* and *Hemicycliophora* were province specific.

Spatial stability of plant-feeding nematode communities, including *Criconemella*, is closely linked to macro-scale soil properties such as pH, nitrogen, and carbon content.

Even though several studies report that geographic location is important in determining nematode composition, climate change and anthropogenic activities may also change the conventional patterns of nematodes in terms of their abundance and diversity.



Figure 8: Nematode galls on cassava tubers

Thank you for your attention!

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