



Plant volatiles signal the host seeking process in root-knot nematodes

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INTRODUCTION

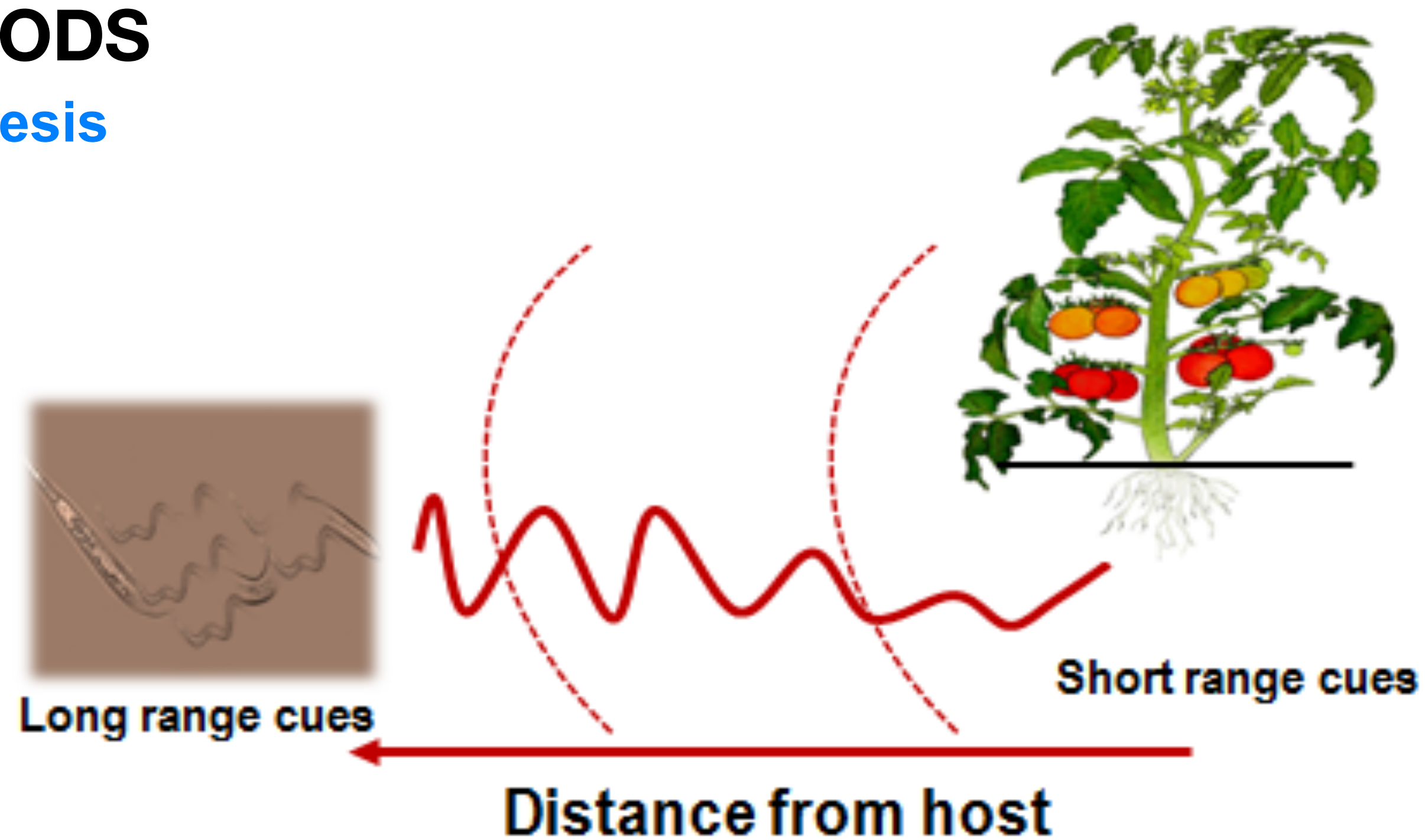
Root-knot nematodes (RKNs), mainly from the genus *Meloidogyne*, are the major constraints to production of high value vegetables in East Africa. Losses associated with RKNs in smallholder farms are unknown, but could range from 30 to 100%, depending on the cropping system. The second stage juvenile (J2), which is the infective stage, hatches from an egg in the soil and infects roots, causing the development of root-knot galls that drain the plant of photosynthates and nutrients. However, little is known about the olfactory cues that attract RKNs to hosts. We hypothesised that RKNs use plant-specific volatile signals to seek and locate hosts. Results are discussed in relation to the management of RKNs.

OBJECTIVE

- To investigate plant-specific signals that influence root-knot nematode seeking behaviour in high-value vegetables.

METHODS

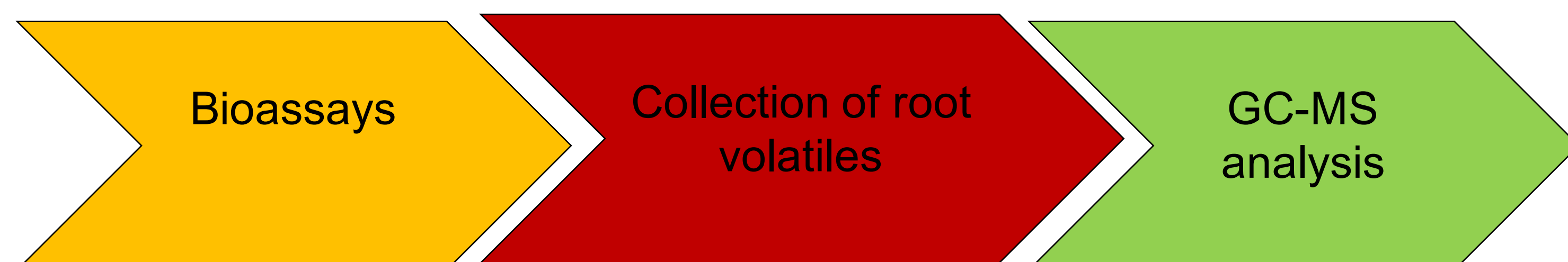
Hypothesis



Extraction of J2s from egg mass



Response of J2s to root volatile compounds



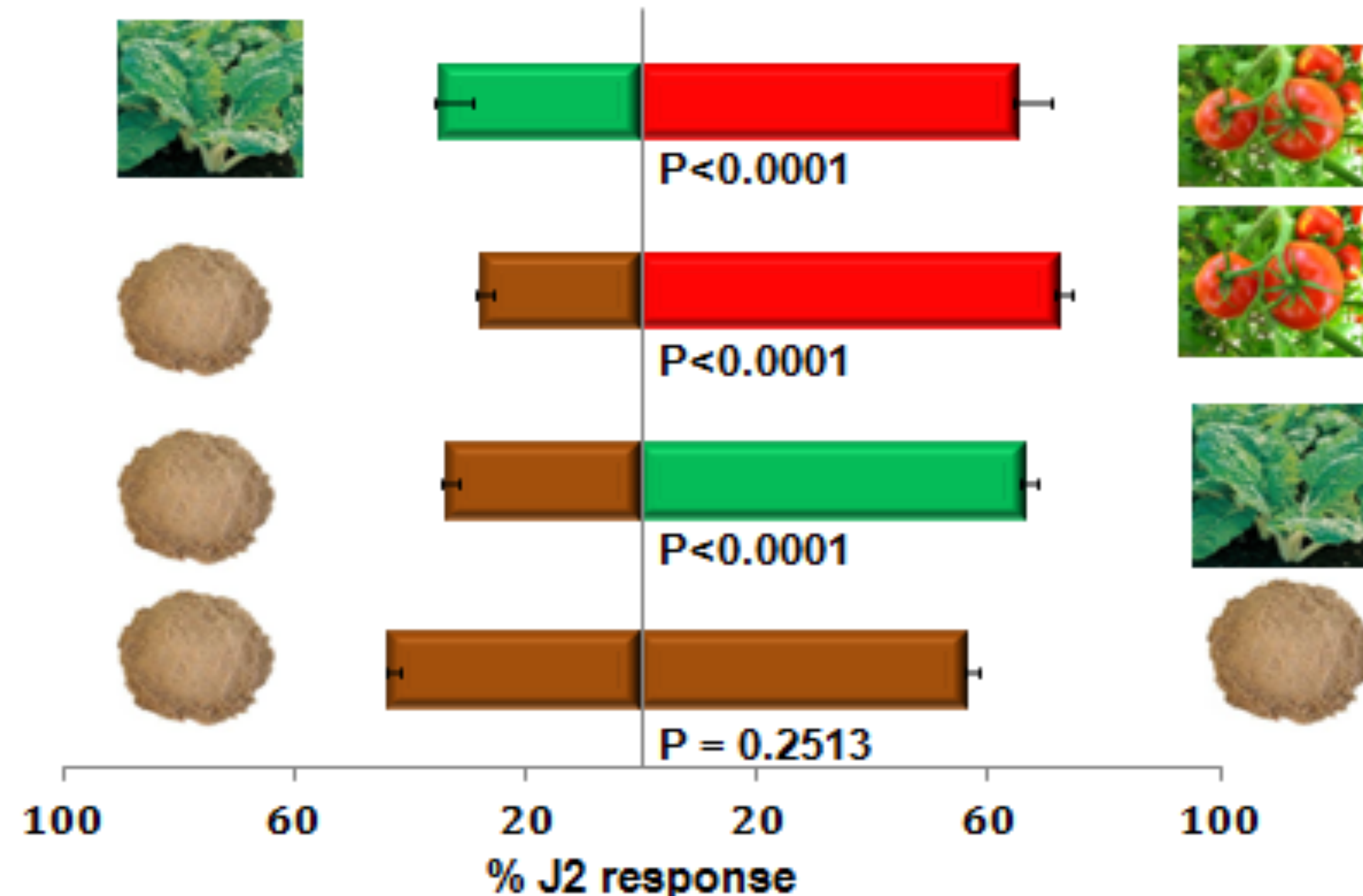
Dual choice soil olfactometer assay



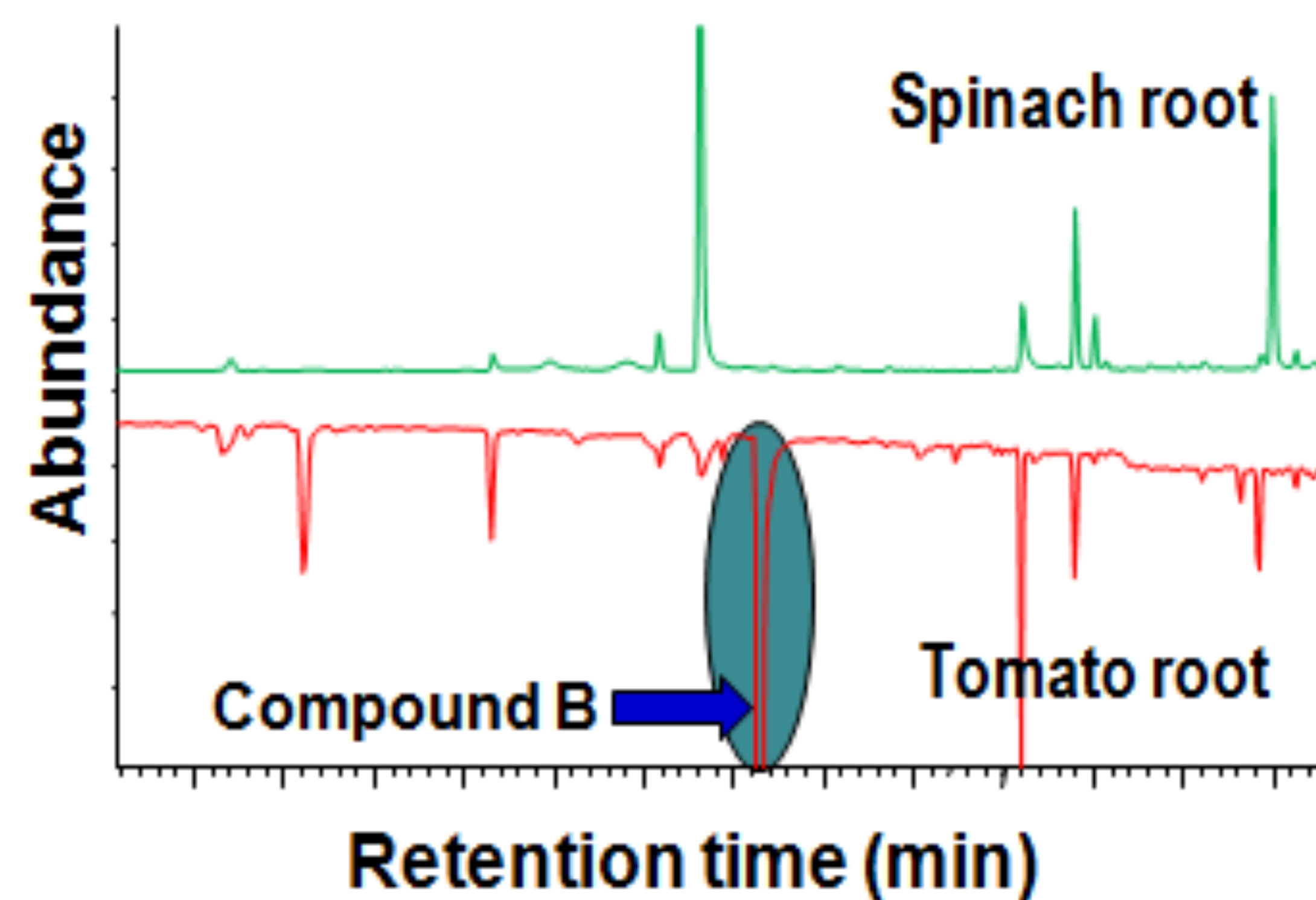
Collection of root volatiles

RESULTS

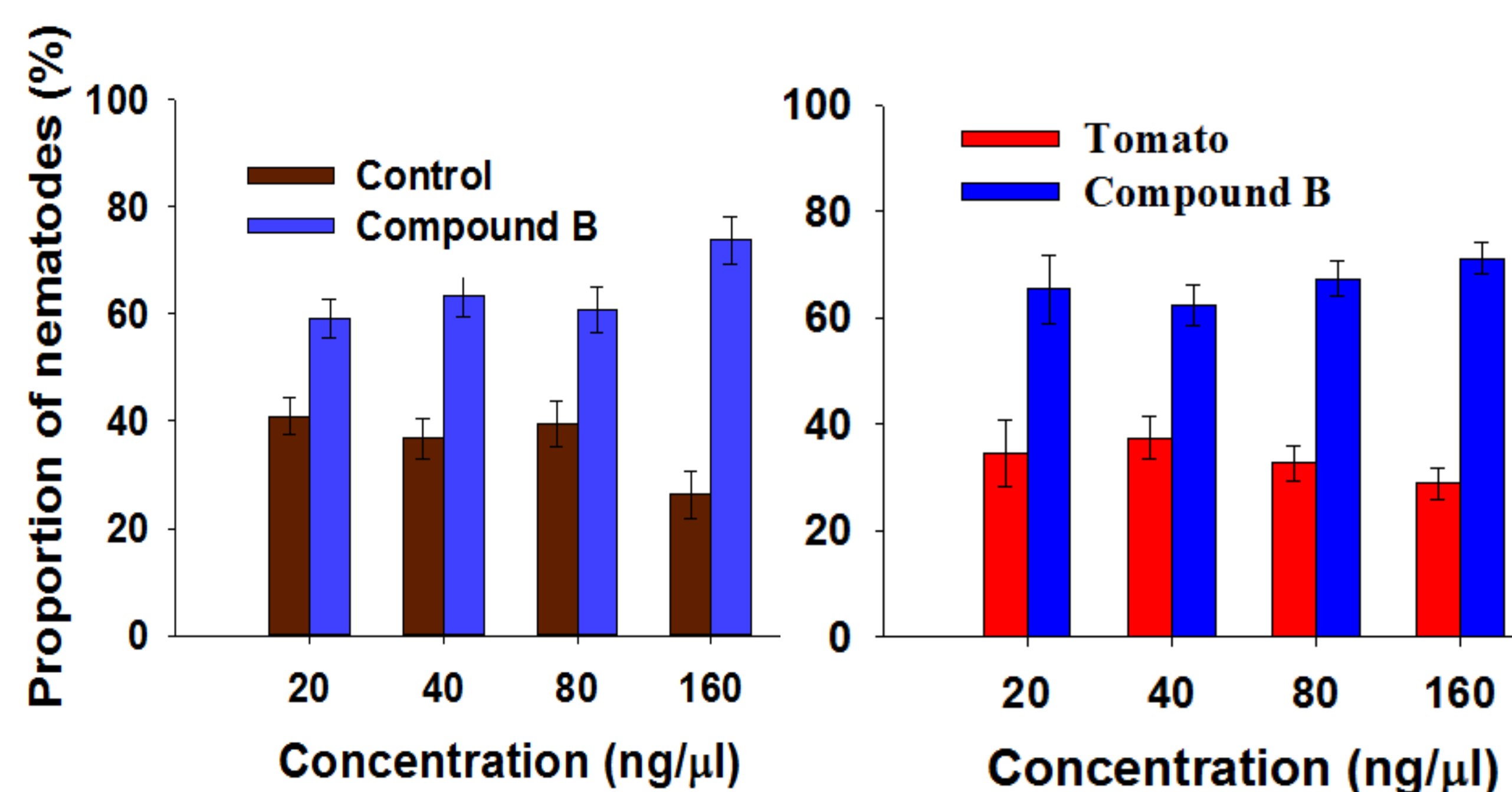
Response of J2s to intact tomato and spinach roots



GC-MS profiles of tomato and spinach root volatiles



Response of J2s to a tomato-specific root volatile



CONCLUSION

- Plant-specific allelochemicals contribute to their differential attractiveness to phytonematodes

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