

3. Evaluation of finger millet root exudates on egg hatch of root-knot nematodes (*Meloidogyne incognita* and *Meloidogyne javanica*)

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Abstract

Finger millet (*Eleusine coracana*) is the most important millet crop in East Africa. It is an annual tufted cereal crop that is commonly cultivated in arid and semi-arid regions in Kenya. It is considered superior to other staple cereal crops due to its unique nutrition profile, mainly the high levels of calcium, iron, dietary fibre, polyphenols, amino acids and gluten free-status. It matures in 75–160 days, has the ability to yield considerably with minimal inputs and can be stored for long periods without spoiling hence a famine reserve crop. Finger millet. Cultivation of finger millet is faced by several constraints including plant-parasitic nematodes (PPNs). Root-knot nematodes (RKN) are the most economically important PPNs that can infect almost all vascular plants. They are obligate, sedentary PPNs that extract nutrients from the cytoplasm of root cells and cause characteristic galls affecting uptake of water and nutrients. In this study, we evaluated the effect of root exudates from 27 finger millet genotypes on egg hatch of two RKN at three different plant ages and two different concentrations. Finger millet seeds were planted in pots in a screenhouse. Their exudates were collected at 14, 21 and 28 days from planting date. The ability of root exudates to induce egg hatch of *Meloidogyne javanica* and *Meloidogyne incognita* was evaluated in the laboratory at 100% and 50% concentration. Our results indicate that exudates from the P-224 and IE2872 finger millet genotypes induced the highest *M.incognita* and *M.javanica* egg hatch respectively. On the other hand, GBK genotypes 000451,043254,043145,036800,043258,008301,000494 had the lowest induction of *M.incognita* and *M.javanica* egg hatch. The results also indicated that 100% concentration had a higher influence on egg hatch compared to 50% concentration of the root exudates. Furthermore, younger plants (14 days old) induced more egg hatch compared to older plants (28 days old) These findings can be used as a base to develop effective nematode management strategies for finger millet when the plants are still young.

Keywords:- Plant defence, reference crop, Root Knot Nematodes, genotype, concentration, root exudate.