

Summary

Globodera pallida infestation on potato is responsible for huge yield losses globally. Screening of potato germplasm for resistance to the nematode at the early stages of a breeding programme can significantly enhance resistance-based management. This study assessed the suitability of tissue culture (TC)-derived potato plants as screening material for resistance to *G. pallida*. Reproduction of the nematode on TC plants was similar to the reproduction on tuber- and eye-plug-derived plants. The pot volume, inoculum density and inoculation time had a significant effect on the reproduction. A positive correlation was found between the mean number of white females on the root surface and the final number of nematode cysts after extraction. Resistance ranking using TC plants and the tubers yielded comparable results, thus justifying the use of TC in the screening process. Tissue culture plants have the potential of speeding up the screening process and reducing resource requirements, thus lowering breeding cost.