

**B-74: Identification of host-pathogen interaction of potato golden cyst nematode and potato germplasm**

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Resistance and susceptibility to various pathogens in plants are determined by estimating the interaction between the host and the pathogen. The first step of identifying the host-pathogen interaction between potato and potato golden cyst nematode (*Globodera rostochiensis*) is provided by the emergence of second stage juveniles owing to the stimulation effect of the plant. This study was conducted to investigate the above-mentioned host-pathogen interaction using *in vitro* hatchability.

Murashige and Skoog (1962) basal medium supplemented with 1.0 mg/l indole-3-acetic acid (IAA) was selected to facilitate root initiation and root growth using potato stem segments and root segments. The root initiation ability was higher in stem segments than in root segments for all potato varieties tested in the selected medium.

When cysts were surface sterilized using a 5% or 10% bleaching solution (NaOCl<sub>2</sub>) contamination was negligible but the hatchability of eggs was low. However, surface sterilization of cysts using HgCl<sub>2</sub> (0.1% for 4 min.) showed a higher hatchability than with NaOCl<sub>2</sub> (without contamination, within 2 weeks).

*In vitro* root tips were inoculated with nematode egg suspension obtained from surface sterilized cysts and they were incubated in the dark at 18 - 20°C. Three to four days after incubation, the second-stage juveniles began to emerge. In the absence of host roots (control), there was very little hatchability, but about 30% of mortality occurred within 10 days. After 2 months, the second-stage juveniles complete their life cycle under *in vitro* conditions and form cysts along the roots.

There was an association between the levels of hatching and the potato varieties. According to the hatchability of nematode eggs under *in vitro* conditions, the 11 varieties tested could be classified into 3 groups: the varieties *Cardinal*, *Diamond*, and *Sante* were resistant (low hatchability group); *Condor*, *Atzimba*, and *Isna* were moderately resistant (moderate hatchability group); and *Serrana*, *Krushni*, *Desireé*, *Delcore*, and *Pomosa* were susceptible varieties (high hatchability group).