

Virus-Free potato production through meristem culture

R. Zarghami¹, A. Hassanpoure², M. Rangraz Jeddi³, M. Seraj Azari⁴ and

A.Ghaem Maghami⁵

1,3,4 and 5. Iranian Research Organization for Science and Technology, Tehran.

2. Fars Agriculture Research Center, Zarghan.

The potato (*Solanum tuberosum*) is the most important non-cereal food crop and is next only to rice, wheat and corn as a major crop in terms of total food production.

This crop is very sensitive to a wide range of plant pathogen like fungi, nematodes, virus and etc, that change either quality or quantity of yield. Some of the important viruses which can reduce yield are PVX, PVY, PVM, PLRV and etc.

There is common knowledge that meristem tip culture can be used for producing virus free plants. To increase the efficiency of meristem culture method, potato meristems were treated by heat-treatment of the infected plants prior to culturing the meristem for 4-5 weeks.

After heat therapy of infected plants excised meristem of axillary buds were cultured on filter paper bridge on liquid and solid medium. Then transferred on solid medium and propagated by single node cuttings in order to have enough plant material for virus testing.

Important results are:

1. Having strong and healthy plant with thick stems are essential for thermotherapy.
2. Relative humidity (50-60%) is essential during thermotherapy.
3. Among three media for growing meristem, the best was MS medium containing 0.25 mg/l GA3, 2 mg/l Ca-pantotenic.
4. Growing meristems on filter paper bridge on liquid medium is more suitable than solid medium and the explants are subcultured without damaging the root system.
5. The exogenous gibberlin is necessary for potato meristem culture.
6. Among four media for rooting, the best was MS medium containing 0.25 mg/l GA3, 0.01 mg/l NAA and 2 mg/l Ca-pantotenic.
- 7- There is no difference between two cultivars for viability and growth of their meristem.