SELECTION OF THE OPTIMAL CONDITION OF THE THERMOTHERAPY METHOD FOR POTATO VIRUSES AND THEIR MICROCLONAL PROPAGATION

[1]M.KUKHALEISHVILI, [2]I. MEGRELISHVILI, [3]T. CHIPASHVILI

Georgian technical Univeristy, Biotechnology Center, Kostava str. 77, 0171, Tbilisi, Georgia
E-mail: maia.kukh@gmail.com

The quality of potato seed material is one of the main factors for its yield. Multiple reproduction in the open filed causes various types of potato diseases, especially viral infections. A study was conducted to evaluate the effect of thermotherapy on the infected potato tubers with Potato virus M (PVM).Four potatoinfected varieties “Picasso”, “Raya”, “Santé” and ‘Arizona” were collected from Tsalka region of Georgia. Tree types of temperature: 33^0C, 36^0C, 39^0C during 2-3-4 h exposition were used for thermotherapy during 27 days.

Potato varieties differently reacted on the various temperature range: The most effective result (100% virus eradication) was obtained by temperature- 36^0C with 2h exposition during 27 daysfor potato varieties “Picasso” and “Raya”. The temperature-36^0C with 4 h exposition during 27 days was the best for potato varieties “Arizona” and “Santé”. 45% eradication of PVM virus was showed in variety“Santé” and 30 % reduction of viral infection was observed in “Arizona”. The in vitro potato collection of four potato varieties “Picasso”, “Raya”, “Santé” and “Arizona” wereestablishedusing apical meristem method.

Thus, within this work the best thermotherapy condition for four potato cultivars:“Picasso”, “Raya”, “Santé” and “Arizona” were selected.

Keywords - Potato, Thermotherapy, Virus, Propagation.