OPTIMIZATION OF SWEET POTATO (*IPOMOEA BATATAS* L.) *IN VITRO* CULTIVATION BY USING THE CONTAMINATED CULTURES FOR OBTAINING NEW SHOOTS IN GREENHOUSE CONDITIONS

Mihaela CIOLOCA[1], Andreea TICAN[1], Monica POPA[1], Nina BĂRĂSCU[1]

e-mail: mihaela.cioloca@potato.ro

Abstract

The artificial media used for plant tissue cultures contains numerous nutrients that can create favorable conditions for the development of pathogens. As antibiotic use is not encouraged, a new strategy has been tried to reduce the losses caused by the presence of microbial infections in *"in vitro"* cultivation of sweet potato. This consisted in the transplantation in greenhouse conditions of sweet potato plantlets from contaminated *"in vitro"* cultures, in order to obtain new shoots. Five sweet potato varieties were used in this study, and two types of substrate for planting: pearlite and a mixture of peat and pearlite (1:1). The survival rate of the plantlets was 100% on the substrate consisting only of pearlite. The surviving sweet potato plants had a rapid growth rate, the greenhouse conditions being favorable for this culture. Approximately two months after transplantation, the obtained shoots could be used as a source of explants to initiate new *"in vitro"* cultures. Regarding the number of shoots the highest value was obtained by the Yulmi variety. The length of the shoots varied according to the variety, thus the highest value was recorded by the KSC1 variety (98.30 cm) . The number of buds/shoot is strongly influenced by the variety. In some sweet potato varieties the distance between buds is smaller, and in others larger, this being a characteristic of the variety. Regarding this trait the best results were obtained in Juhwangmi variety. By applying this method, the process of sweet potato *"in vitro"* multiplication becomes more economically efficient. After only a few weeks under greenhouse conditions, involving minimal costs, many shoots can be obtained.

Key words: plant tissue culture, microbial contamination, plantlets, greenhouse, sweet potato