

## MYCORRHIZAL INOCULATION OF ONION (*ALLIUM CEPA* L.) IN THE EARLY DEVELOPEMENT STAGES

KATALIN FEKETE<sup>1</sup>, RENÁTA HONFI<sup>2</sup>, ZOLTÁN PAP<sup>1</sup>

<sup>1</sup>Szent István University, Faculty of Horticulture, Department of Vegetable and Mushroom growing, Ménesi Street 44., Budapest 1118, Hungary

<sup>2</sup>Szent István University, Faculty of Horticulture, BSc student of Horticultural Science  
fekete.katalin@kertk.szie.hu

The onion (*Allium cepa*) is one of the most widely cultivated vegetables. Its close relatives the garlic, shallot, leek or chive. As a food item, they are usually served cooked, as a vegetable or part of a prepared savoury dish, but can also be eaten raw or used to make pickles or chutneys. Also in Hungary it is an important vegetable, it is the base of many national dishes.

Mycorrhiza fungi is a special fungi, which lives in connection with plant roots. It is a symbiotic fungi which has three main types: arbuscular mycorrhiza (AM), ectomycorrhiza and ectendomycorrhiza. AM are probably the most widespread plant symbionts and are formed by 80–90% of landplant species. Crops inoculated with AM have higher yield and quality, and those plants reacted to stress factors better (e.g. drought, high temperature). Several *Allium* spp. responded with growth promotion on AM inoculation. Onion (*Allium cepa*) plants inoculated with AM, grown in pots with mineral soil had a higher biomass than non-inoculated plants and reached marketable size 2-3 weeks earlier. According to studies AM fungi also has a positive effect on nutrient content.

The aim of our experiment was to find an appropriate method for inoculation of onion seedlings, and define the minimum time for the appearance of symbiosis under greenhouse conditions.

The experiment took place at Szent István University Faculty of Horticultural Science, at the experimental glasshouse of the Department of Vegetable and Mushroom growing, 11th September 2017. We used Daytona F1 onion seeds, the media was Latagro KB2 type peat and two types of mycorrhizal product: MycoGrowth and Aegis Irriga. The experiment was made with 12 treatments with 30-30 seeds per each treatment. During trial chemically treated and non-treated seeds were used. The seedlings were sampled 5, 7 and 14 weeks after sowing, 5-5 seedlings from each treatment per time. Altogether 96 painted and prepared samples were checked, each with 3-3 roots with a Zeiss Axio Imager A2 microscope.

The results showed the appearance of mycorrhizal fungi in a few treatments. In our examination not only typical AM fungi was found, but also in a treatment we found hyphae with big amount of septas.

Results show opportunity of artificially infecting transplants after a few weeks with mycorrhizal products. However, continuing the experiment is necessary with some modification of the factors, to make the procedure more effective.