Effect of Nutrient Solution Concentration Applied During the Seedling Phase on Tomato Growth After Transplanting

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Abstract

Growth conditions during seedling phase can significantly affect plant growth after transplanting. The aim of study was to determine the effect of nutrient solution concentration (EC) applied during seedling phase on growth of tomato after transplanting. Seedlings of three tomato cultivars (Belle, Cheramy and Fado) were grown on three EC-values of nutrient solution (Sonneveld, EC =2, 4 or 6 dS m^{-1}), and after 32 days planted in rockwool slabs and grown at EC = 3 or 5 dS m^{-1}. Vegetative growth of seedlings was affected by EC during 20 days after planting. Plant height and internodes length were lowest for seedlings grown at 6 dS m^{-1}. Cultivar effect was significant at all measurements and plant height and leaf number were generally lower for cv. Belle. First flower cluster appeared for cv. Cv. Cheramy after seventh node, or 41 days after sowing, whereas for cultivars Belle and Fado it appeared after 8 node or more than 50 days after sowing. One month after planting, photosynthesis and stomatal conductance were not affected by EC-value applied during seedling growth, however they were significantly affected by cultivar and EC-value applied after planting. Photosynthesis and stomatal conductance were higher 29% for cv. Cheramy compared to cvs. Belle and Fado, while at 3 dS m^{-1} photosynthesis was higher 11%, and stomatal conductance 21% compared to plants grown at 5 dS m^{-1}. EC-value of nutrient solution applied during seedling phase affected growth after planting depending on growth parameter and time after transplanting.

Key words: flowering, *Lycopersicon esculentum,* photosynthesis, stomatal conductance

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Utjecaj koncentracije hranjive otopine primijenjene u uzgoju presadnica na rast rajčice nakon sadnje

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Sažetak

Rast biljke nakon presađivanja može znatno ovisiti o uvjetima uzgoja presadnica. Cilj istraživanja bio je utvrditi utjecaj koncentracije hranjive otopine (EC) primijenjene u uzgoju presadnica na rast rajčice nakon sadnje. Presadnice tri kultivara rajčice (Belle, Cheramy i Fado) uzgojene su pri tri EC-vrijednosti hranjive otopine (po Sonneveldu, EC = 2, 4 i 6 dS m^{-1}) te nakon 32 dana posađene u kamenu vunu i uzgajane pri EC = 3 ili 5 dS m^{-1}. EC-vrijednost pri kojoj su uzgojene presadnice utjecala je na vegetativni rast rajčice tijekom 20 dana nakon sadnje. Visina biljke i dužina internodija bili su najmanji u presadnica uzgojenih pri 6 dS m^{-1}. Utjecaj kultivara bio je značajan u svim mjerenjima te su najmanja visina i broj listova uglavnom zabilježeni u kultivara Belle. Prvi cvat pojavio se u kultivara Cheramy nakon sedmog nodija, odnosno 41 dan od sjetve, dok se kod kultivara Belle i Fado pojavio nakon osmog nodija, odnosno, više od 50 dana nakon sjetve. Mjesec dana nakon sadnje, intenzitet fotosinteze i provodljivost puči nisu se razlikovali obzirom na EC-vrijednost pri kojem su uzgojene presadnice, no zabilježen je značajan utjecaj kultivara te EC-vrijednosti primijenjene nakon presađivanja. Kultivar Cheramy je imao 29% veću fotosintezu i provodljivost puči u odnosu na kultivare Belle i Fado, dok je pri 3 dS m^{-1} fotosinteza bila veća 11%, a provodljivost puči 21% u odnosu na biljke uzgajane pri 5 dS m^{-1}. EC-vrijednost pri kojoj su uzgojene presadnice utjecala je na rast ovisno o promatranom svojstvu te vremenu nakon sadnje.

Ključne riječi: cvatnja, fotosinteza, *Lycopersicon esculentum,* provodljivost puči

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