

INVESTIGATING THE EFFECT OF DIFFERENCE CYTOKINENS AND SPIRIMIDIN ON BRANCHING OF IN VITRO CULTURE OF *ROSA SP.*CV."ANGELINA"

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INTRODUCTION: Rose ornamental plant which has a history of over 2000 years of culturing is economically one of the most important plants and is planted excessively all throughout the world. On the other hand, Rose is one of the most well-known flowers among cut flowercrops that is usually propagated by bud or shoot grafting. The success in massive propagation of Rose in in vitro culturing is due to micropropagation (Rout et al, 2006). Micropropagated plantlets are suitable for producing cut flowers and they have more and better branching and in some cases more flowering (Pati et al, 2006; Reist 1985). Cytokines in high concentrations (1-10 mg^l-1) lead to improper formation of shoot. Cytokines accelerate the RNA synthesis and increase the activity of proteins and enzymes. Polyamines are a new group of plant growth regulators which influence a lot of processes. Endogenous and exogenous polyamines have antioxidant features and impede lipid peroxydation and inhibit callus to become brownish. The aim of this investigation was to examine the number of branches and leaves and the green leaf's area index under the treatment of cytokinens and Spirmidin.

MATERIALS AND METHODS: This investigation was carried out in Islamic Azad University Khorasgan Branch and plant explants of Rose Angelina were supplied from the University's greenhouse. Healthy and strong branches were selected and divided into 2 cm segments including a node and axillary bud. Afterwards, they were sterilized by alcohol 70% (30s) and sodium hypochlorite solution 5% (10min). The MS medium was sterilized at 121° C for 20 minutes. Then, explants were cultured in MS medium including different concentrations of Benzyladenin(0, 1.5, 2.5 mg^l-1) and Kinetin(0, 0.5 mg^l-1), and Spirmidin (0 and 2 mM) and were put in the growth chamber at the temperature of 23±2 and 18-hour photoperiod light. All the mediums included 0.1 mg^l-1 NAA hormone except the control treatment. This examination was done in 4 repetitions using factorial completely randomized blocks design. The features of green leaf's area, the number of branches, the number of total leaves, and the number of yellow leaves were measured after 100 days. The analysis of the data was carried out by SAS software and the means were compared to Duncan's multiple range test.

RESULTS AND DISCUSSION: According to the analysis and obtained results, the most number of total leaves, branches and green leaf's area were observed in treatments including (0.5 mg^l-1 KI+ 2.5 mg^l-1 BA+ 2 mM Spd) and the most number of yellow leaves obtained in (0.5 mg^l-1 KI+1.5 mg^l-1 BA + 2 mM spd). The fewest of yellow leaves, number of total leaves, and branches were observed in the treatment with no hormone (control treatment) In addition, the least amount of leaf's area was obtained in the treatment including (0.5mg^l-1 KI+ 2.5 mg^l-1 BA). Shoot proliferation and propagation are highly dependent on the composition of culture medium including cytokines as the highest concentration of growth regulator. It is reported that BA growth regulator is the most influential and effective growth regulator. The more the amount of BA growth regulator is reduced, the more the degree of propagation is also reduced. Even when BA growth regulator is combined with NAA growth regulator and the ration of BA is more than NAA, propagation is at higher percentage. This is approved by the results obtained by previous published reports (Asadi et al. 2007; Debener and Oyant 2009; Jabbar, Asadi et al. 2009). Furthermore, it is reported that the more BA amount is increased, the more the amount of shoot producing will be although the numbers' reactions are not completely identical (Yari et al. 2012). Regarding Spirmidin, it is reported that Spirmidin has a positive impact on organogenesis of explants of Tobacco's stems (Walden et al. 1997).

Key words: Rosa, Spirmidin (Spd), Benzyladenin (BA), Kinetin (KI).



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