Investigation on *in vitro* regeneration of *Alstroemeria* plant by tTCL and ITCL techniques

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**Abstract**

Two separate experiments were conducted to evaluate the possibility of *in vitro* regeneration of rhizome and shoot in *Alstroemeria aurantifolia* 'Konyambe' flower by tTCL and ITCL in biotechnology laboratory of Mohaghegh Ardabili University in Iran. Both experiments were arranged in completely randomized designs with five replications. In this experiment some characteristics such as shoot number and length, root number and length, rhizome number and length and intact and lost leaves were measured. No regeneration was found in stem explants which micro-propagated by tTCL and ITCL techniques. The results also showed rhizome of *Alstroemeria* gave the most and highest *in-vitro* regeneration compared to other organs. Among all evaluated traits, significant difference (P<0.05) was found only in rhizome number which L2D1 treatment was produced the highest rhizome number (mean=3 numbers) compared to other treatments. No significant differences were found in other traits. However, mean comparisons showed that L2D0 and L2D1 treatments produced the highest (4.47) and lowest shoot number respectively. The results also revealed that the most intact and lost leaves were related to L2D1 treatment. The results of NAA and BA effects on *in-vitro* regeneration of Alstroemeria flowers revealed that 1ppm NAA in combination with 1ppm BA produced the highest and significant rhizome number (mean=6.16 numbers) compared to other treatments. However, no significant were found in other traits. Comparison of means revealed that the highest root number (2.09) was related to 1 ppm NAA in combination with 1 ppm BA. The highest root length (1.38 cm) was obtained from media which contained 0.1 ppm NAA in combination with 2 ppm BA.

Key words: Alstroemeria, cultivar, ITCL, rhizome, tTCL.

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