



## Effect of Cycocel and Salisilic acid on Morphologic Traits of *Brassica Oleracea*, Pink Type

S.N. Mortazavi<sup>1</sup>- F. Khodabandelu<sup>2</sup>- M.H. Azimi<sup>3</sup>

Received: 01-10-2012

Accepted: 08-06-2014

**Introduction:** *Brassica Oleracea* L. is biennial of cabbages family. This plant is valuable for its leaves and resistivity against cold weather. Cabbages are resistant to cold and suitable for landscape in cold areas. In some ornamental plants, the control of plant size, vegetative growth and size reduction is necessary to enhance sale. Salicylic acid is a phenolic compound that is produced naturally in plants and on multiple factors affect. Cycocel is one of the retarder material to the growth. This research was performed in order to best retarder concentration of growth factors to improve the quantity and quality of ornamental cabbage landscape.

**Materials and Methods:** This study was done as factorial experiment in a randomized complete block design with three replications. Experiment was performed with two factors of cycocel with four levels (0, 50, 100, 150 mg.lit<sup>-1</sup>) and salicylic acid with four levels (0, 50, 100, 200 mg.lit<sup>-1</sup>) by spraying and every of them with three replications. In this experiment, traits such as plant height, anthocyanin, resistivity against cold weather, electrolyte leakage, rational component of water, chlorophyll, wet and dry weight of leaves, wet and dry weight of roots and the number of leaves were investigated. 80 numbers of uniform seedlings of ornamental cauliflower varieties of purple were prepared and after the reached the stage of 5 and 4 leaves to the pot of 10 to 15 cm and then after a short growing period for the the main land (bed) in loam soil with distance of 30 cm they were transferred. The treatment of salicylic acid and CCC two times and as foliar application on the leaves of cabbage was performed them with an interval 24 to 48 hours. The first stage of treatment on 18 and 19 November and after a few days of planting cabbage and establish them in the land, was performed. Statistical analysis using software MSTATC and comparing the average results using Duncan's multiple range test was performed.

**Results and Discussion:** Result from variance analysis showed that using of cycocel and salisilic acid have effect on growing, anthocyanin, number of leaves, rational component of water, chlorophyll, net weight of wet and dry leaves and roots, is significant in the level of one percent. The highest percentage of electrolyte leakage, leaf number, leaf and root dry weight and fresh weight were observed at 200 mg/ liter. The plant height, anthocyanin, cold resistance and Fresh weight of root were in control. High levels of chlorophyll and relative water content were observed in 100 mg/ liter. The use of Cycocel had a significant effect on growth traits. The highest dry weight of leaves, root dry weight and the highest percentage of electrolyte leakage in the treatment of 150 mg/ liter and the highest plant height, the highest percentage of relative water content and chlorophyll was observed in control. Most of the leaves, anthocyanin and cold resistance at the level of 50 mg/liter and highest fresh weight were observed at 100 mg/liter. The cycocel had no significant effect the growth traits.

Results showed that significant interactions SA and CCC one percent of levels on plant height, electrolyte leakage, number of leaves, anthocyanins, relative water content, chlorophyll content, leaf dry weight and root dry weight and the significant other traits has not. The results showed that spray application separately SA and CCC and the interaction of these compounds had significant effects on the plant height, anthocyanin extract, chlorophyll conten, fresh weight of root and dry weight of root. The results showed that the Cycocel and interaction of SA and CCC had a significant effect on the relative water content, but salicylic acid alone had no significant effect, which may be no significant in this experiment due to lack of relative water content in the presence of a low level of salicylic acid and or the duration of treatment was low. Cycocel alone and combination of SA and CCC had significant effects on dry weight of leaves, but salicylic acid alone had no significant effect.

**Conclusions:** Therefore, to increase the quantity and quality characteristics of ornamental cabbage treatments

1, 2-Assistan Professor and Graduate MSc student in Horticulture Science, Floriculture, University of Zanjan  
(\*- Corresponding Author Email: Mortazavi46@yahoo.com)

3- Assistan Professor, National Institute of Ornamental Plants (NIOP), Horticultural Sciences Research Institute (HSRI), Agricultural Research, Education and Extension Organization, Mahallat, Iran (AREEO)

Salicylic acid concentration of 200 mg l cycocel concentration of 150 mg per liter is recommended.

**Keywords:** *Brassica Oleracea*, Cycocel, Morphologic traits, Salicylic acid

Archive of SID