Investigation the Effect of Light Quality and Quantity on Growth and Morphology of Lisianthus (*Eustoma grandiflorum*) and Salvia (*Salvia officinalis*)

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September 21, 2013
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Degree: M.Sc Language: Farsi

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Abstract

Ornamental plants have an important role in landscape design because of their beauty and creating calm atmosphere. Among the living element, the perennial flowers such as Lisianthus and Salvia have high importance. Light conditions affect several factors on the growth of plants. Most of the bedding flowers spend early stages of their growth to flowering under the plastic shields and then are transferred to the field. Due to lack of sufficient information in relation to greenhouse coverings and their role in the change of light quantity and quality, that is the limiting factor in ornamental flowers production, this experiment was admitted to investigate the effect of greenhouse cover, shade and open condition (without cover) on the flowering, qualitative and quantitative characteristics of Lisianthus and Salvia as bedding plant., This experiment was arranged in two exams on a completely randomized design with 6 treatments and 3 replications in the first exam and 3 treatments with 3 replications in the second exam in Isfahan University of Technology in 2011 till 2012. Treatments in the first exam consisted of 4 levels of greenhouse covering materials (0%, 3%, 5%, 8% anti UV additive), 50% shade and open condition (without cover) and treatments in the second exam consisted of plastic cover with 12% anti-UV additives, 50% shade and open condition (without cover). Results in Lisianthus in the first exam showed that treatment plastic cover with 8% anti UV additives increased significantly morphological characteristics of plant incloude stem diameter, shoot wet and dry weight, stomatal conductance water, transpiration and root dry weight of Lisianthus flowers compared with the other treatments., Treatment plastic cover with 12% anti UV additives compare with control (open) and 50% shade increased significantly stem diameter and stomatal conductance water characteristics. Results in Salvia in the first exam showed that treatment plastic cover with 8% anti UV additives increased significantly shoot dry weight and transpiration characteristics in Sage growing. Treatment plastic cover with 12% anti UV additives comparing with control (open) and 50% shade increased significantly shoot wet and dry weight of Salvia and reduced plant height and inflorescence. Treatment plastic cover with 12% anti UV additives producted low-lying Salvia create a large number of branches. Overall, seems to be Treatment plastic cover with 8% anti-UV additives comparing with control (open) and 50% shade ,and treatment plastic cover with 12% anti UV additives compare with control (open) and 50% shade provides better conditions. The results showed that after two years, due to light reduction transmission by 8% anti UV additive, this cover is recommended to growing dwarf Lisianthus. Also, due to light increase transmission by 12% anti UV additive, this cover is recommended to growing Salvia in Isfahan landscape.

Key Words: Lisianthus, shade, greenhouse covering materials, light, flowering