

The Research of Natural Cold Source Used to Produce *Eustoma grandiflorum* Seedlings¹

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Abstract

Using deep ocean water (D.O.W.) as a natural refrigerant through high-efficiency plate heat exchanger can produce 19-20 °C cool wind to cool greenhouse for seedlings incubated. In the hot summer season, this system could maintain daily average temperature at 26.4 °C in 60 m² double plastic film greenhouse. In this experiment, results revealed that the rosette rate of late-blossom Lisianthus varieties 'Mirage Pastel Pink' and 'Platinum Violet' was 6% and 28% respectively after incubated in D.O.W. cooling house and planted in the field, in addition, the other cultivars showed no rosette phenomenon. Days from planting to blossom of Lisianthus 'Presto Blue Line' was shortest (53 days) and 'Platinum Violet' was longest (85 days), while other cultivars blossomed in 58-65 days after planting. The height of flower stems of 'Exrosa Pinkflash' was shortest (33.8 cm) and 'Platinum Violet' was tallest (64.5 cm). Non-rosette Lisianthus seedlings could be produced by using D.O.W. cooling system, but some could not. Because of the efficiency of D.O.W. cold source was decreased by the far distance between greenhouse and the heat exchanger.

keywords : deep ocean water, seedling, energy conservation, rosette, cooling.

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