

# **IMPROVEMENT RESULTS OF THE PROPAGATION AND CULTIVATION TECHNIQUES FOR CHRYSANTHEMUM CV. C05.1 AND GERBERA CV. G04.6**

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At the present, the traditional temperate cut flower cultivars in Viet Nam have been imported and the plant variety protection right duration has been expired. These cultivars can not meet the potential market demand such as Japan, Hong Kong and Singapore. The plant variety protection right is a big concern for the commercial cut flower in large scale and exportation when Viet Nam has participated in World Trade Organization (WTO) and the Union of Plant Variety Protection (UPOV). Crossing and selection of new promising cut Chrysanthemum and Gerbera flower varieties to satisfy the market's requirement are, therefore, really necessary for cut flower cultivation in Viet Nam. New cultivars will adapt well to local cultivation conditions and can reduce the plant variety protection right's cost contribution when be exported. From 2004 to 2008, the Potato-Vegetable-Flower Research Center had crossed and selected some new promising chrysanthemum, gerbera, carnation and gladiolus varieties. Among them, two gerbera cultivars *G04.6* and *G04.7* developed and selected in 2004, and two chrysanthemum cultivars *C05.1* and *C05.3* developed and selected in 2005 have showed a superior growth, high potential yield and superior level of main insects and diseases resistance. These cultivars had been released to farmers and officially approved as new cultivars by the Ministry of Agriculture and Rural Development in December, 2008.

The improvement of propagation and cultivation techniques for those new cut flower cultivars is very important for the development of cut flower production with the new promising cultivars. The experiments include:

- Determination of the:
  - density and suitable fertilizer level for chrysanthemum cv. *C05.1* stock garden
  - optimal BAP concentration in MS medium for shoot proliferation of gerbera cv. *G04.6*
  - optimal NAA concentration for root formation of gerbera cv. *G04.6*;
- Effect of cultivation substrate and foliar fertilizer on the growth of gerbera in greenhouse
- Effects of the:
  - fertilizer levels on the growth and development of chrysanthemum cv. *C05.1*
  - fertilizer levels on the growth, development, and potential yield of gerbera cv. *G04.6*
- Establishment of post-harvest protocol for chrysanthemum cv. *C05.1* and chrysanthemum cv. *G04.6*.

Experiments were arranged according to regulations with control treatments.

The BAP concentration at 0.5mg/l was effective to gerbera cv. *G04.6* proliferation, with vigorous shoots, and the numbers of shoots/shoot cluster were 7.7 with shoot cluster weight of

594mg/shoot. Rooting of gerbera cv.G04.6 was the best, with 2.4 roots/seedling with root length of 1.3 cm on average when MS + 0.6 NAA + 0.2 mg/l AC formula was applied.

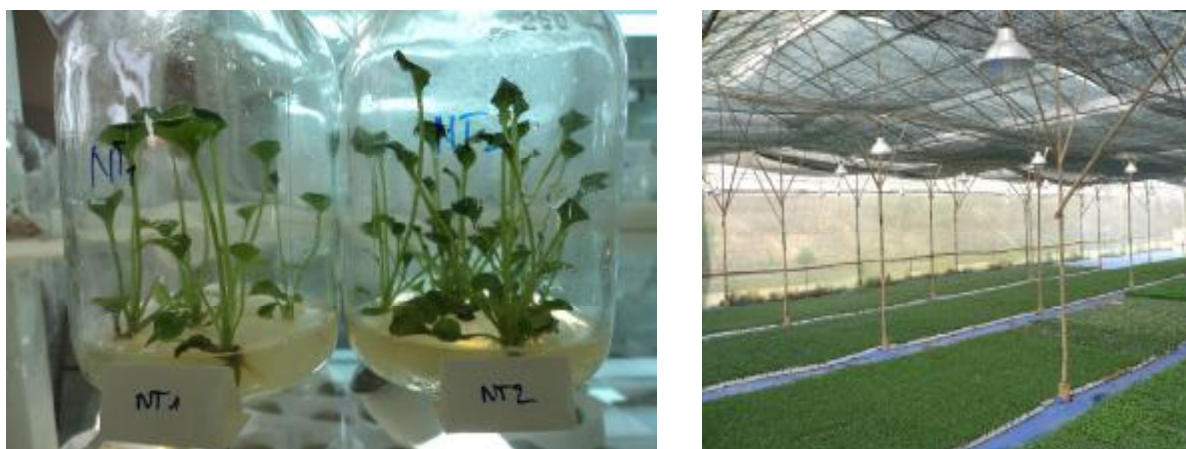


Fig.1 and 2: Proliferation protocol trial

The combination between coconut vermiculite (50%) and humus soil (50%) as a substrate plus spraying foliar fertilizer Grow more (NPK: 20-20-20) or Purple fertilizer (NPK: 15-5-20 + 2MgO + TE) were effective to the growth and development of gerbera seedling plants with more than 96% of survival one, 5.6 leaves and 4.5cm in height per seedling plants on average.



Fig. 3 and 4: Establishment of cut flower production protocol

Application of fertilizer at 200kgN + 150kgP<sub>2</sub>O<sub>5</sub> + 200kgK<sub>2</sub>O per hectare for chrysanthemum cv. C05.1 cultivation as cut flower showed an effective result. Plants had a vigorous growth with rather resistance to main insects and diseases. Flower and stem diameter were bigger in comparison to those of the other fertilizer levels. For gerbera cv.G04.6, fertilizer at the rate of 250kgN-150 kg P<sub>2</sub>O<sub>5</sub> – 200kg K<sub>2</sub>O per hectare for 6-month cultivation with 7-10 times applications, the flower yield was 41.6 stems/m<sup>2</sup>/month with flower height of 65-72cm, on average. Flower stiffness was harder and flower color was brighter.



Fig. 5 and 6: Cut flower postharvest trial

Flocare NH, a cut flower preservative solution, prepared and commercialized by the Potato-Vegetable-Flower Research Center was used for cut flower postharvest treatment. The aim of the study was to evaluate the effect of flower harvesting times and preservative solution Flocare NH on flower vase life. The result showed that vase life of chrysanthemum cv. *C05.1* was the longest of 15-16 days when flowers were picked up at 9a.m or 3-6p.m, then stood immediately in buckets with solution Flocare NH. Flower color and foliage freshness lasted longer, and 100% of flowers fully opened after 8-10 days with Flocare NH treatment. Similar results were also obtained on gerbera cv. *G04.6* when Flocare NH was used.