Manipulating Flowering Season of *Eremogone juncea* (M.Bieb.) Fenzl by Chilling Treatment and Cold Storage

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*Eremogone juncea* (M.Bieb.) Fenzl (*벼룩이울타리*) is a Korean native plant which has attractive characteristics as a potential new ornamental crop with white flowers and summer flowering. For industrialization of *E. juncea*, manipulation technique to control flowering time is required. This study was carried out to examine the flowering response of *E. juncea* by chilling treatment to induce flowering (experiment 1) and cold storage to delay flowering (experiment 2). In experiment 1, the one-year old plants were exposed to natural chilling or artificial chilling at 5°C for 0, 4, 8, and 12 weeks or 0, 4, and 8 weeks, respectively, and then moved into a walk-in chamber. Chill unit (CU) was 0, 675, 1393, and 2070 under natural chilling treatment, respectively. Percent flowering increased with increasing chilling duration regardless of chilling methods. The number of days to visible bud and days to the first open flower also decreased as the chilling duration increased. Irrespective of chilling methods, the flowering characteristics were highly correlated with CU. These results indicated that chilling treatment was necessary for the flower initiation of *E. juncea*. Moreover, at least 938 – 1393 CU may be recommended for over 80% flowering. In experiment 2, the plants which were already exposed to natural chilling in winter were stored for 0, 4, 8, and 12 weeks at 0°C. There was no significant difference in the number of days to visible bud and days to the first open flower among different storage durations, whereas the flowering time was delayed as storage period increased. However, percent flowering decreased in all the cold storage treatments. These results indicated that flowering could be delayed by storing the plants at cold temperature, but further studies on the storage timing or temperature are needed to overcome the decrease in percent flowering by cold storage. In conclusion, chilling treatment and cold storage can be used to control the flowering time of *E. juncea* for year-round cultivation. (This study was financially supported by the project ‘Development of Year Round Cultivation for Industrialization of Wild Flowers as New Ornamental Crops’ of Korea National Arboretum, Project No. KNA-19-C-54.)

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