

Researches on Protection, Propagation and Sustainable Usage of Native Bulbous Plants of Turkey

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Abstract

Over 1000 flowering bulbous plants are naturally grown in Turkey. Flowering bulbs exportation has been in effect for years from Turkey. In recent years, exportation has been under strict control, it has been realized according to yearly given quota by The Ministry of Food, Agriculture and Livestocks. Even though the present regulations and status, negligible amount of illegal wild collections are still going on. A number of researches has been conducted to prevent illegal collections and meantime to encourage artificial propagations and sustainable uses. These projects are mainly financed by the concern ministries, research institutes and universities. A good scale of geophyte exhibition garden has been established in Yalova Province to take the interest of people and administrative staff. The present research projects are mainly concentrated on some well known flowering species such as tulips, hyacinthus, crocus, stenbergia, iris, fritillaria, snowdrop, lilies so on.

Keywords: Geophytes, sustainability, researches

1. INTRODUCTION

Turkey is one of the richest countries in terms of native bulbous plants in the world. According to the latest research, there are approximately 1000 natural flower bulbs (geophytes) taxa that grow in Turkey. Due to the studies in recent years the numbers of taxa in geophytes have increased year by year. The conservation of them are very important to carry these plants for next generation and sustainability. Turkey has exported native flower bulbs since the 1883's. Export amount increased since from 1960 and reached to 80 million in 1984. The excessive collection of wild flower bulbs caused unreplacable damage to many geophytes. Some measures were taken since from 1984 to protect the species. The amount of exportation determined according to yearly given quota by the Ministry of Food Agriculture and Livestocks. Regulation is re-arranged according to the rules of CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) every year. CITES studies of Turkey has been shown as an model to the world at the CITES meeting held in Kenya. Also as a precaution, it was decided to in situ conservation without collected from nature for 5 consecutive years for the geophytes of under threat. Even though the present regulations, illegal collections are still going in lesser extent.

In number of natural flower bulbs species which are exported from Turkey is about twenty. Share of Turkey, on geophyte export to the Netherland is given below. is Galanthus 65 % , Cyclamen 99 % Fritillaria , 99 % , Leucojum 80 % , Anemone 90 % , Eranthis 95 % , Ornithogalum 1 % , Stenbergia 100 % (Ildir 1996).

Snowdrop (Galanthus sp.) is the most important species of the whole geophytes in Turkey. A number of researches has been done in artificial production of snowdrop and promising results were obtained. The snowdrop gave the best results in situ propagation and also 4 year interval were successful (Baktr 2010).

A number of researches on cultural production and propagation of geophytes started since from 1980 at different research institution and universities in Turkey. Also the training Works have been going on since 1982 for the local people. There are carried out research and production activities in cooperation with different European countries.

In this paper, the researches about the sustainability and conservation of natural flower bulbs are summarized.

2. Research Studies on Propagation and Protection of Geophytes in Turkey

Bulbous plants are perennial plants and they are propagated from seed or an underground organ mostly herbaceous such as a bulb, tuber, corm or rhizome. Tissue culture techniques is used as a vegetative propagation method.

One of the most important projects carried out in some geophytes were supported by TÜBİTAK 1007 between 2006-2009. At the end of the project the collected Iris, Fritillaria, Hyacinthus, Liliium, Nectaroscordum, Tulips, Pancratium and Colchicum species have been conserved in the collection gardens of respective institutes in Yalova province. In the second part of the project is existing gen pools species from other countries and standart varieties will be expanded, by using selection, mutation and hybridization techniques new candidate varieties will be developed. Also, with this project has been established geophyte garden in Turkey. In this period, the other research projects are mainly

concentrated on some well known flowering species such as *Crocus*, *Stenbergia*, *Galanthus*, *Ornithogalum*, *Cyclamen* so on.

Furthermore several studies was conducted on different propagation methods of various species. Chipping and twin scaling methods in *Leucojum aestivum* (Aksu et al. 2002), chipping and twin scaling methods in *Galanthus elwesii* (Zencirkıran and Mengüç 2002, Kahraman and Özzambak 2006), chipping and twin scaling in *Narcissus serotinus* (Zeybekoğlu and Özzambak 2012), chipping and twin scaling methods in *Ornithogalum* sp. (Karaguzel et al. 2012), chipping in *Narcissus pseudonarcissus* (Ertekin et al. 2010), different cutting methods in *Muscari muscarimi* (Arslan et al. 2012), seed propagation in *Cyclamen* sp.(Aksu et al. 2002), seed propagation in *Crocus* sp. (Haspolat 2012) were investigated.

Also many research studies have been carried out on in vitro micropropagation of geophytes in recent years. Micropropagation of some native flower bulbs such as *Galanthus elwesii* and *Galanthus ikariae* (Ellialtıoğlu et al. 1998), *Orchis* (Gümüş et al. 2006), *Pancreatum maritimum* (Gümüş and Ellialtıoğlu 2006), *Ornithogalum* (Ozel and Khawar, 2007, Ozel et al. 2008, Nasırcılar et al. 2011), *Fritillaria* (Gürlek and Özcan 2012), *Stenbergia fischeriana* (Mirici et al. 2005, Karaoğlu et al. 2012), *Muscari mirum* (Nasırcılar et al. 2011), *Polyanthes tuberosa* (Yıldırım et al. 2010), *Cyclamen* sp.(Mendi et al. 2010) and endemic *İris galactica* (Uzun et al. 2012) has been reported.

3. RESULTS

Turkish flower industry has become a dynamic sector developing constantly. The production areas and the amount of export are increased year after year. The measures taken on propagation studies for sustainability of natural flower bulbs with % 7 share in this sector are promising. In this review, propagation studies on natural flower bulbs in Turkey, are given. After this, increase of reserches on breeding of geophyte species are important. At the same time given training for the protection of species should be continuous.

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