

GENETIC RESOURCES OF THE FRUIT TREE, SMALL FRUIT AND ORNAMENTAL PLANT COLLECTIONS AT THE RESEARCH INSTITUTE OF POMOLOGY AND FLORICULTURE IN SKIERNIEWICE, POLAND

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A B S T R A C T

The field collections at the Research Institute of Pomology and Floriculture in Skierniewice are the largest in Poland. They cover ten hectares and contain almost 5000 fruit tree, small fruit and ornamental plant genotypes.

The fruit tree collections contain over 1300 old and new apple varieties, 280 pear varieties, 180 plum varieties, almost 400 sweet and sour cherry varieties, about 200 peach and apricot varieties, more than 70 walnut and hazelnut varieties, and about 300 rootstock clones and wild fruit tree genotypes.

The small fruit collections contain 100 strawberry varieties, 200 black, red and white currant varieties, 50 gooseberry varieties, 150 blueberry and cranberry varieties, and 50 wild *Ribes* genotypes. The collections also include varieties of other small fruits.

The ornamental plant collections contain about 1500 varieties, including about 800 tulip varieties, 220 narcissus varieties, 150 lily varieties, over 100 gladiolus varieties, and about 130 rose varieties.

The Research Institute of Pomology and Floriculture cooperates with other institutions with similar collections in Europe and in other parts of the world. New Polish and foreign varieties are constantly being added to the collections.

The accessions have been evaluated in accordance with UPOV and IPGRI descriptors. The data collected are stored on computer and documented with photographs. Some of the data have been placed in the European Data Bases for '*Prunus*' at Bordeaux (INRA) and for '*Malus/Pyrus*' at Wye College in England.

Key words: collection, fruit tree, small fruit plant, ornamental plant, evaluation, cultivar, accession

HISTORICAL BACKGROUND

The fruit tree collections in Skierniewice were established in the late 1920s by Dr Włodzimierz Gorjaczkowski of the Warsaw Agricultural University. During and after World War II, the collections were administered by Dr Aleksander Rejman. In 1951, the fruit tree collections in Skierniewice became part of the newly established Institute of Pomology, founded by Prof. Aleksander Pieniżek. In 1997, the institute changed its name to the Institute of Pomology and Floriculture when collections of ornamental plants of the Plant Breeding and Acclimatization Institute at Radzików near Warsaw were moved to Skierniewice.

THE CURRENT STATUS OF THE COLLECTIONS AND THEIR ORGANIZATION

The field collections in Skierniewice are the largest in Poland. They cover ten hectares and contain almost 5000 fruit tree, small fruit and ornamental plant genotypes.

The fruit tree collections cover eight hectares and comprise twelve collections containing over 2500 apple, pear, plum, sweet cheery, sour cherry, peach, apricot, walnut and hazelnut varieties, as well as rootstock clones and wild *Malus*, *Pyrus* and *Prunus* genotypes (Grzyb and Hodun, 2004).

The apple collection covers 3.0 hectares and contains over 1000 varieties, including old and local varieties collected from different regions of Poland. Each variety is represented by two trees grafted on M 26 rootstock.

The pear collection covers 0.8 hectares and contains 280 varieties, many of which were collected from home gardens, especially from southern Poland. Each variety is represented by three trees.

The plum collection covers 0.6 hectares and contains about 180 varieties. Each variety is represented by three trees grafted on *P. cerasifera* var. *divaricata* seedling rootstock.

The sweet and sour cherry collection covers 1.6 hectares and contains almost 400 old and new Polish and introduced varieties (Grzyb and Hodun, 1996). Each variety is represented by three trees. The sweet cherry varieties are grafted on Mazzard F 12/1 rootstock, and the sour cherry varieties are grafted on *P. mahaleb* seedling rootstock.

The peach and apricot collection covers 1.0 hectares and contains about 200 varieties (Jakubowski and Grzyb, 2004). Each variety is represented by four trees. The peach varieties are grafted on *P. manchurica* seedling rootstock, and the apricot varieties are grafted on *P. cerasifera* var. *Divaricata* seedling rootstock.

The collections also include walnut and hazelnut collections, pome and stone fruit rootstock clone collections, and collections of wild *Malus*, *Pyrus* and *Prunus* genotypes (Sitarek and Grzyb, 1999).

The small fruit collections cover over one hectare and comprise ten collections containing over 800 genotypes, including 100 strawberry varieties, 200 black, red and white currant varieties, 50 gooseberry varieties, 150 blueberry and cranberry varieties, and 50 wild *Ribes* genotypes. The collections also include varieties of other small fruits, including sea buckthorn, *Cornus mas*, *Lonicera coerulea*, *Sambucus nigra*, rosehip and chokeberry. Those varieties which are not winter hardy are maintained in greenhouses and plastic covered tunnels.

The ornamental plant collections cover about one hectare and comprise five collections containing about 1500 genotypes, including about 800 tulip varieties, 220 narcissus varieties, 150 lily varieties, over 100 gladiolus varieties, and about 130 cultivated and wild rose genotypes (Sochacki, 2002).

SOURCES OF NEW GENOTYPES

New genotypes come from several sources. Some are acquired from other collections in Poland and abroad. Some old and new varieties are collected during field expeditions in Poland and abroad, and can be included in the off-site collections. Some were developed during breeding programs, including those focused on breeding cultivars resistant to scab, powdery mildew, and other diseases. Some were obtained from gardeners and amateur breeders.

DOCUMENTATION OF GENOTYPES IN THE COLLECTION

Passport data are obligatory for each genotype. Each genotype has also been evaluated in accordance with UPOV and IPGRI descriptors. Other data include data on growth, vigor, crown habit, blossoming period, blossoming intensity, ripening period, yield, fruit size, skin color, flesh color, juice color, stem length, stone size, and ease of separation of flesh from stone. For fruit plants, photographic records are also kept (Hodun and Grzyb, 2000; Grzyb and Hodun, 2002). For ornamental plants, data on esthetic qualities are also recorded. Some of the data have been placed in the European Data Bases for '*Prunus*' at Bordeaux (INRA) and for '*Malus/Pyrus*' at Wye College in England.

UTILIZATION OF THE COLLECTIONS

The main goals of the collections are to protect and preserve genetic resources of horticultural plants, especially those endangered by old age, poor

health and the advances of modern civilization, and to maintain detailed information on them. The data acquired from the collections is very valuable because it is the result of long-term observations.

Some of the genotypes in the collections are used in special breeding programs carried out at the Research Institute of Pomology and Floriculture in Skierniewice (Grzyb, 2004; Grzyb et al., 2004).

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- apricot and peach – Dr. T. Jakubowski
- walnut and hazelnut – G. Hodun, MSc.
- rootstocks of seed and stone trees – Dr. P. Bielicki and Dr. M. Sitarek
- small fruit shrubs – Dr. J. Gwozdecki, B. Koziński, MSc., and Dr. J. Lisek
- ornamental plants – Dr. D. Sochacki

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ZASOBY GENOWE DRZEW OWOCOWYCH, ROŚLIN JAGODOWYCH I ROŚLIN OZDOBNYCH W KOLEKCJI INSTYTUTU SADOWNICTWA I KWIACIARSTWA W SKIERNIEWICACH

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S T R E S Z C Z E N I E

Kolekcja zasobów genowych w Skierniewicach zajmuje powierzchnię około 10 ha. Jest w niej około 5000 taksonów drzew owocowych, roślin jagodowych i roślin ozdobnych – głównie cebulowych. Obejmuje ona ponad 1300 taksonów starych i nowych odmian jabłoni, 280 taksonów gruszy, 180 taksonów śliwy, prawie 400 taksonów wiśni i czereśni, około 200 taksonów brzoskwini i moreli, ponad 70 taksonów orzecha włoskiego i leszczyny oraz 300 klonów i dzikich gatunków drzew owocowych.

W kolekcji roślin jagodowych jest około 100 odmian truskawki, 200 odmian porzeczki czerwonej, czarnej i białej, 50 odmian agrestu, około 150 odmian borówki i żurawiny oraz około 50 gatunków dziko rosnących roślin jagodowych.

Kolekcja roślin ozdobnych obejmuje około 1500 taksonów, wśród nich jest prawie 800 odmian i typów tulipana, około 220 odmian narcyza, 150 odmian lilii, ponad 100 typów mieczyka i prawie 130 typów i gatunków dzikiej róży.

Kolekcja skierniewicka należy do jednych z największych w Polsce. Jest ona systematycznie powiększana i waloryzowana za pomocą deskryptorów UPOI i IPGRI. Opisy pomologiczne roślin są przechowywane w komputerze, a owoce dokumentowane fotograficznie. Kolekcja Instytutu Sadownictwa i Kwiaciarnictwa w Skierniewicach jest częścią kolekcji europejskiej, której dane gromadzone są w Europejskiej Bazie Danych (EDB) – dla grupy *Prunus* – we Francji w Bordeaux (INRA), a dla gatunków *Malus/Pyrus* – w Anglii – w Wye College University. Kolekcja jest co roku systematycznie powiększana o nowe typy lokalne i odmiany pozyskiwane z zagranicy w drodze wzajemnej wymiany z innymi kolekcjami.

Słowa kluczowe: kolekcja, odmiana, genotyp, takson, drzewo owocowe, roślina jagodowa, roślina ozdobna