

УДК 635.927
06.01.05 – Селекция и семеноводство
(сельскохозяйственные науки)

**ПЕРСПЕКТИВЫ ВЫРАЩИВАНИЯ
РОССИЙСКИХ СОРТОВ СИРЕНИ (*SYRINGA
VULGARIS L.*) В ФИНЛЯНДИИ**

Лях Елена Михайловна, к.б.н.,
SPIN-код = [1159-2153](#); Researcher ID R-9529-2016.
ФГБУН Центральный сибирский ботанический сад
Сибирского Отделения РАН (ЦСБС СО РАН), г.
Новосибирск, Российская Федерация.
Старший научный сотрудник,
E-mail: lyakh@rambler.ru
Ул. Золотодолинская, 101, 630090, г. Новосибирск,
РФ.

Нукари Анна
Институт природных ресурсов Финляндии (Люк)
Исследователь
E-mail: anna.nukari@luke.fi
PO Box 2, FI-00791 Хельсинки, Финляндия.

Рантонен Марья
Институт природных ресурсов Финляндии (Люк)
Исследователь, PhD
E-mail: marja.rantanen@luke.fi
Сурвонтиэ 9А, FI-40500 Юваскуля, Финляндия.

Аннотация.

Сирень обыкновенная (*Syringa vulgaris L.*), является одним из самых важных ландшафтных растений во всем прохладном и умеренном климате, и в Финляндии также очень популярный и традиционный декоративный кустарник. Разнообразие сортов сирени, доступных для использования в научных исследованиях и для выращивания в Финляндии, можно было бы расширить, введя в Финляндию русские зимостойкие сорта. Необходимо изучить их выносливость и выживаемость в финском климате. В рамках совместного проекта в Финляндию были привезены сорта сирени обыкновенной, которые растут в Центральном Сибирском ботаническом саду Сибирского Отделения РАН (ЦСБС СО РАН) в г. Новосибирске. В настоящее время коллекция *Syringa vulgaris* в ЦСБС СО РАН насчитывает 26 сортов из 116 испытанных, наиболее устойчивых к условиям города Новосибирска. В рамках проекта "Syreenimaja" (2016-2018) в нескольких местах Финляндии были сделаны небольшие площадки с использованием русских сортов для испытания их морозостойкости. Наблюдается выживаемость и хороший рост этих растений в новых насаждениях и в старых садах. Растения еще молоды и цветут не все. Предварительные результаты показали, что у российских сортов сирени обыкновенной есть потенциал для роста в Финляндии, но хотя сорт "Дафна" пострадал от зимних травм. Приведены

УДК 635.927
06.01.05

**PROSPECTS FOR GROWING RUSSIAN LILAC
CULTIVARS (*SYRINGA VULGARIS L.*) IN
FINLAND**

Elena Lyakh, Ph.D.
SPIN-код = [1159-2153](#); Researcher ID R-9529-2016.
Central Siberian Botanical Garden of the Siberian
Branch of Russian Academy of Sciences. Novosibirsk,
Russian Federation.
Senior researcher,
E-mail: lyakh@rambler.ru
Zolotodolinskay st. 101, 630090 Novosibirsk, Russian
Federation.

Anna. Nukari
Natural Resources Institute Finland (Luke)
Research Scientist
E-mail: anna.nukari@luke.fi
PO Box 2, FI-00791 HELSINKI, FINLAND

Marja Rantanen
Natural Resources Institute Finland (Luke)
Research Scientist (PhD)
E-mail: marja.rantanen@luke.fi
Survontie 9A, FI-40500 Jyväskylä, Finland

Abstract

Common lilac (*Syringa vulgaris L.*), is one of the most essential landscape plants throughout the whole cool and temperate region and also in Finland very popular and traditional ornamental. The diversity of the lilacs available for research use and growth in Finland could be broadened by introducing Russian winter hardy cultivars to Finland. Their winter hardiness and survival in the Finnish climate has to be studied in order to proceed to using Russian cultivars in the Finnish climate. Lilacs that grow at the Central Siberian Botanical Garden Siberian Branche of the Russian Academy of Sciences at Novosibirsk were introduced to Finland within the framework of the collaborative project in 2012. Currently, the collection of *Syringa vulgaris* in CSBG SB RAS has 26 cultivars of 116 tested ones, most resistant to the conditions of Novosibirsk city. In project "Syreenimaja" (2016-2018) small scale plantations with Russian lilac cultivars were made at several locations in Finland and the freezing tolerance of the cultivars was tested. The survival and growth of the lilac plants in these plantings in landscape gardening areas in old gardens is being observed. The lilac plants are still young and have not been flowering broadly. The preliminary results have shown that the Russian lilacs have potential to grow in Finland, but at least cultivar 'Daphna' has suffered from winter injuries. Descriptions of 10 tested lilac cultivars from the collection of the CSBG SB RAS are given.

описания 10 исследуемых сортов сирени из коллекции ЦСБС СО РАН.

Ключевые слова: сирень обыкновенный, *Syringa vulgaris*, полевые испытания, морозостойкость.

Keywords: common lilac, *Syringa vulgaris*, field trials, freezing tolerance, winter hardiness.

DOI: <http://dx.doi.org/10.21515/1990-4665-153-030>

Common lilac (*Syringa vulgaris* L.), native to the Balkan Mountains, is one of the most essential landscape plants throughout the whole cool and temperate region. It is very popular and traditional ornamental that has cultural value in Finland in landscape gardening [1]. It is a target species in the Finnish National Programme of Plant Genetic Resources and was until recently and also included in the Finnish Certified Plant Production Scheme. The diversity of the lilacs available for research use and later maybe also for growth in Finland could however be broadened by introducing Russian winter hardy cultivars to Finland. In addition to local *Syringa vulgaris* accessions, current cultivar selection originates in Middle-Europe. However, their winter hardiness is a limiting factor for use of lilac cultivars in landscaping. Winter hardiness and survival in the Finnish more marine climate has to be studied in order to proceed to using Russian cultivars in larger scale in Finland.

A collaborative project (*Syringa vulgaris* genetic resources) between the Department of Agricultural Sciences, University of Helsinki, and MTT Agrifood Research Finland, Plant Production Research, hereafter Natural Resources Institute Finland (Luke), was started in spring 2012. The description of the project can be found in the Winter 2013 issue of LILACS [2]. The primary aim of this project was to develop methods for micropropagation and DNA fingerprinting of common lilac genotypes [3, 4]. We worked with common lilac taxa, 10 cultivars of Russian origin from the collection of Central Siberian Botanical Garden Siberian Branche of the Russian Academy of Sciences at Novosibirsk. (Figure 1-10).

‘Altayskaya Rozovaya’ (photo 1): Buds are pink; florets are pale pink, single. Petals are back-oval. Inflorescences are medium and sparse. Aroma is weak. Bushes are wide, height is 0.5-1.5 m.



Photo 1. ‘Altayskaya Rozovaya’ (photo Elena Lyakh),

‘Dafna’ (photo 2): Buds are reddish-purple; florets are magenta, single. Petals are rounded oval, twisted ends. Inflorescences are small and dense. Aroma is weak. Bushes are quite small (0.3-0.7m).



Photo 2. ‘Dafna’ (photo Elena Lyakh),

‘Fioletoviy Ghigant’ (photo 3): Buds are dark-violet; florets are violet, single. Petals are oval. Inflorescences are large and not dense. Aroma is strong. Bushes are tall.



Photo 3. 'Fioletoviy Ghigant' (photo Elena Lyakh),

'Indiya' (photo 4): Buds are purple-violet; florets are purple-violet with a reddish tint, large, single, fragrant. Petals are oval, with slightly raised edges, curved. Inflorescences are large and dense. Bushes are wide and have an average height.



Photo 4. 'Indiya' (photo Elena Lyakh),

'Krasavitsa Moskv'y' (photo 5): Buds are large, pink; florets are pinkish-white, by the end of blossoming white, double, large and very fragrant. Petals are raised. Inflorescences are pyramidal and dense. Bushes are wide and have an average height.



Photo 5. 'Krasavitsa Moskvy' (photo Elena Lyakh),

'Krasnaya Moskva' (photo 6): Buds are violet-magenta, florets are dark magenta, with yellow stamens, single, fragrant. Petals are round, with slightly raised edges. Inflorescences are dense. Bushes have an average height.



Photo 6. 'Krasnaya Moskva' (photo Tatiana Poliakova),

'Kruzhev'nitsa' (photo 7) : Buds are pink; florets are bluish-pink, double. Petals are ovate-extended. Inflorescences are large and sparse. Aroma is gentle. Bushes are wide and have an average height.



Photo 7. 'Kruzhevnitsa' (photo Elena Lyakh)

'Nadezhda' (photo 8): Buds are deep lilac; florets are light blue, double, large and fragrant. Petals are wide oval, top petals are narrower and slightly curved. Inflorescences are large pyramidal and very dense. Bushes have an average height and compact shape.



Photo 8. 'Nadezhda' (photo Elena Lyakh),

'Ogni Donbassa' (photo 9): Buds are dark lilac with a red hue; florets are purple-lilac, with light lilac tips of petals, double. Petals are oval, with raised edges. Inflorescences are pyramidal and dense. Aroma is strong. Bushes are wide and have an average height.



Photo 9. 'Ogni Donbassa' (photo Elena Lyakh),

'Pamyat' o S. M. Kirove' (photo 10): Buds are dark, pinkish-lilac; florets are bluish-lilac, double, fragrant. Petals are oval, slightly raised. Inflorescences are large, broadly pyramidal and dense. Bushes have an average height.



Photo 10. 'Pamyat' o S. M. Kirove' (photo Elena Lyakh),

Ten lilac cultivars that had proved to be winter hardy at the Central Siberian Botanical Garden at Novosibirsk were micropropagated and rooted on peat substrate 2013 and 2014 at Luke Laukaa Research Station. After establishment plants were transplanted outside to the experimental field on substrate bed in 2014 and 2015. The preliminary results have shown that the Russian lilacs have potential to grow in Finland.

In new project “Syreenimaja” (translating from Finnish to English as Lilac Arbour) from 2016 to 2018, small scale plantings with Russian lilac cultivars were made at several locations in Finland. The cultivars were subjected to the controlled freezing tests. The aim of the project was to test the lilac cultivars that have shown to be winter hardy in Siberia to find modern and winter tolerant range of cultivars with best performance to satisfy the needs of modern consumers and to awake for new the interest towards use of common lilacs not only in old gardens and historical surroundings or in the countryside landscape, but also in new residential and landscaping areas.

Ten lilac cultivars that had proved to be winter hardy at the Central Siberian Botanical Garden at Novosibirsk, were chosen to be used in the small scale garden plantings around Central Finland (62° N at Järvinlinna garden at Laukaa and Schaumannin linna, University of Jyväskylä gardens at Jyväskylä and two other public locations at Jyväskylä and in Helsinki in Southern Finland (60° N at the University of Helsinki area at Viikki in North-Eastern Helsinki). The cultivars were ‘Altayskaya Rozovaya’, ‘Dafna’, ‘Fioletoviy Ghigant’, ‘Indiya’, ‘Krasavitsa Moskvyy’, ‘Krasnaya Moskva’, ‘Kruzhevnitsa’, ‘Nadezhda’, ‘Ogni Donbassa’ and ‘Pamyat’ o S. M. Kirove’.

One Finnish origin of common lilac, cultivar ‘Liisa’ was included to some of the Central Finland plantations as a local control. Survival and growth of the lilac plants in these plantings in landscape gardening areas in old gardens is being observed. Freeze testing was performed in winter 2016-2017 in December and in the early April, that were estimated to be critical timepoints for the hardiness.

The lilacs planted to the field either in 2013 to Helsinki or in 2015-2016 to Laukaa and Jyväskylä in Central Finland are still young and have not been flowering broadly. The plantings will continue growing at their locations after this project as far as the plants survive alive, so that also in later years observations can be continued. The preliminary results have shown that the

Russian lilacs grow partly in Finland, but at least cultivar 'Daphna' has suffered from winter injuries both in Central and Southern Finland. The freeze testing results indicate parallel that the beautifully flowering 'Daphna' might anyway not be the best lilac option for example for the Finnish nursery production. In the Finnish climate the growth may terminate temporally, but continues after a while. Therefore, unripened shoots are susceptible to winter injuries.

In the lilac genetic resources preservation work, the external threats of the traditional preservation in open-air conditions could be avoided by the use of *in vitro* and cryopreservation methods. Screening for improved *in vitro* and cryopreservation methods for lilac was initiated at MTT in 2012, but further research is required. At the moment no lilacs are yet in long-term cryopreservation at Luke.

A replicated planting with all cultivars was established to Luke Haapastensyrjä Research station (60° N at Loppi) in 2019, where the effect of pH on flower colouring will be studied.

We wish to express our gratitude to the Academy of Finland, to Dr. Leena Lindén (Department of Agricultural Sciences, University of Helsinki) and to Nikolai and Ljudmila Borisoff Foundation for financial support and to Esko Alm for kindly planting the lilacs in historical gardens around Central Finland.

Work is carried out with applying of bioresource scientific "Collection of Living Plants in Open and Closed Ground" USU 440534.

Reference

1. Hauta-aho L. Common lilac cultivars in the green areas of the city of Helsinki, Finland [Text] // *Lilacs*, 2006. Vol. 35. N4. P. 118-120.
2. Elena Lyakh, Anna Nukari, Leena Lindén, Jaana Laamanen, Marjatta Uosukainen. *Syringa vulgaris* Genetic Resources Pilot project in Finland [Text] // *Lilacs, Quarterly Journal of the International Lilac Society*, USA, 2013, 42(1), p.21-23.
3. Elena Lyakh. Method Modifications for DNA Extraction in Lilacs [Text] // *Quarterly Journal of the International Lilac Society*, USA, 2014a., 43(1), p.17-19.
4. Elena M. Lyakh DNA Fingerprinting: Common Lilac cultivars from Historic Park and Botanical Garden Collections. [Text] // *Public Garden*, USA, 2014b, Vol.28, N 4:24-26.