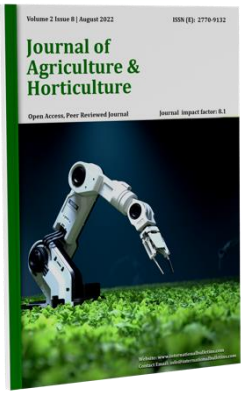

JAPANESE PRIVET (LIGUSTRUM JAPONICUM THUNB.) AND CHINESE PRIVET (LIGUSTRUM SINENSE LOUR.) SPECIES

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Abstract. Various species of privet, including Japanese privet (Ligustrum japonicum) and Chinese privet (Ligustrum sinense), are widely used in ornamental horticulture due to their aesthetic value and usefulness in landscape design. For the sustainable cultivation of Ligustrum species in different regions, it is essential to identify biotic stresses, implement control measures, and focus on management practice.

Keywords Ligustrum japonicum, Ligustrum sinense, landscaping, solitaires, green hedges, living walls, bosquets.

Research Site and Methods

The scientific research was carried out in Surkhandarya region and district centers, particularly in creating landscape designs around multi-storey buildings. It is also important to develop new compositions by harmonizing ligustrum species with other species adapted to the local environment. The selection of about 10 ligustrum species, establishing nursery production, shaping, grafting, and developing new cultivars adapted to the regional climate represent the novelty of this study. In this context, it is also necessary to determine the morpho-biological characteristics and frost resistance of introduced (Oleaceae family) species.

The experiments are being conducted at the experimental plot (0.1 ha) of the Bandikhon Experimental Farm of the Surkhandarya branch of the Research Institute of Horticulture, Viticulture, and Winemaking named after Acad. M. Mirzaev. Phenological observations and biometric measurements are carried out on 1–2 and 4-year-old (mother) ligustrum trees. A new technology for vegetative propagation from mother plants is being developed. For this purpose, a specially constructed greenhouse with controlled microclimate conditions has been established. In this greenhouse, the propagation of ligustrum from green cuttings is carried out using methods developed by M.T. Tarasenko and Kh.Ch. Buriev et al.

Research Results

In our studies, the objective was to investigate and provide a scientific basis for the most widespread species of Ligustrum.

Glossy privet (Ligustrum lucidum Ait.)

This is a small evergreen tree with leaves covered in green and light brownish spots. The flowers are small, creamy, fragrant, and up to 20 cm long. Flowering occurs from July until early autumn. It is frost-resistant, tolerating temperatures down to –15 °C. The cultivar Excelsum Superbum is a rare evergreen tree with small bright yellow spots along the leaf margins. Various unusual curled forms occur, with leaves colored in shades of green and light brown.

Oval-leaved privet (Ligustrum ovalifolium)

Native to Japan. A tall, upright, vigorous evergreen or semi-evergreen shrub reaching up to 4 m in height with a wide crown. Leaves are oval, dark green, 6–10 cm long, and the shrub bears dense white panicles. Flowering occurs in July. The fruits are spherical, glossy, and black.

Amur privet (Ligustrum amurense)

Introduced from northern China, this ornamental shrub bears leaves up to 5 cm long. White inflorescences appear in June–July. The wax-coated, spherical black fruits ripen in early autumn (September–October). This species is frost-sensitive; therefore, planting requires sites sheltered from cold winds, and the shrubs need protection during winter to avoid frost damage.

Ibota privet (Ligustrum ibota)

Native to China, Korea, and Japan. A tall shrub with shoots reaching up to 2 m. The leaves, up to 7 cm long, are dark green and glossy on the upper side, while the lower surface has smaller, paler leaves. In June–July, the plant bears fragrant white inflorescences up to 7 cm long, though flowering does not occur every year. Fruits are spherical, black, and up to 1 cm in diameter, ripening by late September.

Quihoui privet (Ligustrum quihoui)

Native to China. A wide shrub reaching up to 5 m in height with rounded leaves. Branches are thin and arched, bearing small, glossy light-green leaves. Inflorescences may reach 20 cm or longer, with blackish-purple coloration.

Tschonoski privet (Ligustrum tschonoskii)

Native to Japan and Korea. This shrub grows 1–2.5 m tall, consisting of young pubescent shoots and bare two-year-old stems. Leaves are slightly glossy, broad-lanceolate to elliptic, 2–6.5 cm long and 0.8–2 cm wide, with short tips and pubescence along the veins. Inflorescences are dense, cylindrical, 2–4 cm long, covered with short hairs. Flowering occurs in June. Fruits are spherical, slightly glossy, about 0.8 cm in diameter.

Common privet (Ligustrum vulgare)

In natural conditions, it is widespread in southern and southwestern Ukraine, northern Moldova, the Crimean mountains, the Caucasus, Central and Southern Europe, North Africa, and parts of Central and Minor Asia. It forms dense, branching shrubs up to 5 m tall. Leaves are lanceolate or oval, glossy, dark green above and lighter green below. Flowers are small, white, fragrant, and form dense panicles blooming for 20–25 days in early summer.

Fruits are glossy black berries that remain on the branches until January. This species grows rapidly in its youth and is highly frost-resistant, tolerating temperatures as low as –30 °C. It is also drought-tolerant and adaptable to various soil types, thriving even in calcareous soils and slightly saline conditions. In Uzbekistan, winter frost can cause significant damage, so planting in sheltered areas is recommended. In southern regions, it grows well and adapts to urban conditions. When cultivated, it forms dense hedges and can be shaped into various ornamental forms. Propagation is carried out by seeds and root suckers. It is often used as a rootstock for other Oleaceae species such as lilac and olive. Considered one of the best shrubs for large forest plantations and elevated terrains, some of its forms are widely grown as ornamental shrubs.

Ligustrum yezoense

Native to the Far East and China, this shrub reaches a height of 1–1.5 m. The bark of the large branches is gray. Leaf petioles are 2.5–6 cm long and 1.5–2.5 cm wide, with shapes

ranging from elliptic, occasionally lanceolate or oval-lanceolate. The upper surface of the leaf is dark green and thin, while the underside is light green and covered with hairs along the central vein. Branches are pubescent. Flowers are approximately 0.5 cm, bell-shaped, ovate-lanceolate, yellowish-white or greenish-white, blooming in June–July. Fruits are about 0.7 cm long, spherical, bluish-black.

Japanese privet (Ligustrum japonicum Thunb.) and Chinese privet (Ligustrum sinense Lour.)

Both species are highly valued in ornamental horticulture and landscape design for their distinctive features. Ligustrum japonicum, native to Japan, has dense, glossy leaves and fragrant white flowers, making it suitable for hedges and ornamental plantings in gardens and parks in various regions. Similarly, Ligustrum sinense, native to China, is prized for its adaptability and comparable aesthetic qualities. It generally grows up to 2.5 m, occasionally reaching 6 m.

The main difference of these plants compared to other species is that they are evergreen ornamental shrubs or small trees. The stems are smooth with light gray to brown bark. The leaves are tough, smooth, and glossy on the upper surface, giving the plant an attractive appearance. Japanese privet is characterized by its broad branching habit and evergreen foliage. Another distinctive feature is the abundance of nectar during flowering. The fruits are dark-colored, inedible, and remain on the plant throughout winter without losing their decorative appeal. Flowering begins in May, with fruits reaching 8–10 mm in length, ripening in October–November. Shrubs older than three years bloom and bear fruit annually.

Ligustrum japonicum is also known as wax-leaf privet or Japanese privet.

Diseases and Pests

Despite their advantages in landscaping, these Ligustrum species are susceptible to various diseases and pests. Diseases include anthracnose, root rot, leaf spot, and copper deficiency, all of which negatively affect plant health and ornamental quality.

In addition to these diseases, Ligustrum japonicum and Ligustrum sinense are also highly vulnerable to insect pests. Common pests include:

- Aphids (Homoptera: Aphididae)
- Red spider mites (Arachnida: Tetranychidae)
- Root weevils (Coleoptera: Curculionidae)
- Thrips (Thysanoptera: Thripidae)

General Information on Ligustrum

Ligustrum is a genus of shrubs and small trees belonging to the Oleaceae (olive) family. The genus includes many species, the most popular of which are widely cultivated for ornamental purposes.

Chinese Privet (Ligustrum sinense Lour.)

The Chinese privet (Ligustrum sinense Lour.) is an evergreen shrub species belonging to the Oleaceae family. Compared to other plants, it is distinguished by its abundant flowering and fruiting as well as its small leaves. It usually grows as a shrub or small tree, typically 2–4 m tall, but sometimes reaching up to 7 m. Leaves are opposite, generally small, 2–7 cm long and 1–3 cm wide. Flowers are white, 3.5–5.5 mm long, and bloom from July. Chinese privet is light-demanding and grows well in fertilized and moist soils. The fruits are dark-colored, inedible, and persist on the plant throughout winter without losing their color. Fruits are 4–8 mm long, 5–8 mm in diameter, with seeds ranging in color from green to dark brown. Chinese privet is also shade-tolerant and grows particularly well in northern regions.

As noted above, the seeds of Chinese privet (Ligustrum sinense) and Japanese privet (Ligustrum japonicum) are ovoid, with a hard, stony seed coat that is slightly ridged and jointed. The seeds of these plants are very similar in size: both are about 4–5 mm long and 2–3 mm wide. They are light brown in color, and each fruit contains a single seed. The structure of the seed coat helps plant biologists identify these species when studying their ecology and biology. However, it should be noted that ligustrum seeds must be avoided, as they are toxic to humans and animals.

In conclusion, the morphology of the fruits and seeds of Chinese and Japanese privet species is very similar. Both produce small, black, berry-like drupes containing a single seed. Their seeds are ovoid, with a hard, stony coat that is somewhat ridged and segmented. Understanding the morphology of these plants provides valuable information about their biology, behavior, and ecological impact.

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