

THE USE OF PERENNIAL VINES FOR VERTICAL LANDSCAPING IN THE LANDSCAPING OF THE CITY OF SAMARKAND

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The development of Floriculture and planting in the regions of the Republic of Uzbekistan in order to popularize the secrets of domestic and foreign flower breeding, floriculture among the population, many practical projects are being carried out at the government level in the following years. In this regard, it is important scientific and practical to study, increase and popularize the biological characteristics of ornamental perennials suitable for the conditions of the city of Samarkand. We know that most urban open spaces will have a unique appearance, mainly due to the composition of plants and their unique location. In contrast, the same type of plant composition and its irregular placement often disrupt the harmony in the form of a noticeable landscape in the form of open space, which contradicts its functional tasks and prevents a person from gaining interest in the landscape. Within ornamental plants, lianas occupy a special place. These plants are little studied scientifically, these plants show a unique landscape. Lianas have formed their own life forms, appearance or appearance in nature, like other plants. Landscaping the facades plays an important role in improving the environment. Greening the facades in areas with high population density and a lack of vegetation serves as an optimal solution. Facade Greening systems differ from vertical greening in that ornamental plants are placed directly on the facades. Vertical greening is the greening of garden and park structures and facades of buildings with lianas. Through vertical greening, the following tasks are carried out in the urban environment: decorative function; increasing the green space by several times; disassembling and insulating the space; at the expense of protection against wind, sun and heat influences, an improvement in environmental and microclimate indicators is achieved. To this end, scientific research is carried out on the study, reproduction and introduction of perennial liana species suitable for soil-climatic conditions of Samarkand. Ornamental perennial liana species are found naturally in the flora of Uzbekistan. Perennial ornamental lianas reproduce using cuttings, leaves and seeds. The most important breeding for each species is under way.

Early scientific work on the morphology, Ecophysiology of lianas was carried out by A.Gumbolt (1806), X.Molla (1827), L.Palma (1827), H.Shenka (1892), I.G. Serebryakova (1962), F.N.Can be seen in the works of Rusanov (1970) and other scientists. Currently, lianas are studied in two groups:

1. Herbaceous (one or perennial)
2. Look like tree

Lianas are very common in tropical and subtropical areas, some of which can be several hundred meters (Calamus) long [3]. Scientists believe that the period of historical origin of the lianas was described as typical of the stone coal age of the Paleozoic era. A.I.Kolisnikov (1974) divides all lianas into two groups.

1. Leaf-shedder
2. Evergreen

The order, species, and systematics of lianas vary. For this reason, their homeland of origin is also different. Depending on the growth and development of lianas, several groups can be distinguished. They are robust and provide elasticity and creaminess to the plant's body. Perennial lianas mostly record leaves in early spring and

shed their leaves at the end of the autumn season. Some species are year-round. The flowers of ornamental lianas are umbrella, rosehip, solitary, Peaty, and the duration of fragrant, pungent-smelling flowering is 10-30 days, depending on the species. Accordingly, perennial lianas are distinguished from each other precisely in terms of flowers, leaves [3-4].

In order to compete with other plants in the development of plant evolution, lianas have embodied this vital form in themselves. Given the diversity of lianas, most scholars have recommended that they be studied in several groups. For example:

1. Leaning lianas (*Calamus, rubus caesius, rose*, etc).
2. Root-rotting lianas (*Campsis, hedera*, etc.) [8].
3. Chirping lianas (*Aristolochia, Lonicera, Wisteria, Actinidia*, etc).
4. Lianas growing by leaf band (*Clematis, Atragene*)
5. Pendant lianas (*Vitis, Ampelopsis, Parthenocissus, Passiflora*, etc.) [3].

The research was carried out in the Greenhouse of the Sharaf Rashidov Samarkand State University in Samarkand, which is considered the center of the Samarkand region, as well as in the Botanical Garden. In the course of studies, breeding methods of growing lianas clematis, hook-billed lianas were studied, involving rotting lianas through lonicera, wisteria, actinidia, leaf band. Perennial ornamental lianas reproduce well mainly from cuttings or seeds. Cuttings were taken from selected species. For reproduction, first of all, uninfected cuttings were selected. It was usually stored for 15-20 minutes in ornamental liana cuttings and a 1% solution of fungicide or potassium permanganate. The growth of plants in certain environments largely depends on the level of development of the root system. The strong growth and development of the plant root system plays a key role in the growth-development of the upper organs of the Earth [3].

Containers prepared for planting are prepared. Prepared cuttings are planted on top 1-2 cm apart, and the soil is laid 2 cm over the picking. Where the experiments were carried out, the average air temperature was ensured to be 20-25 grade. The light was 2500-3000 Lux and was observed for 40-45 days. It was observed that the growth indicator of your roots improved if humidity and ventilation were sufficient [1].

As a result of our research, lianas were described, which are especially distinguished by their decarative appearance and scenic features, which are rare in the city of Samarkand. A table of perennial lianas used in landscaping has been formed.



Lonicera japonica Thunb.

Division: *Magnoliophyta*
Class: *Magnoliopsida*
Family: *Caprifoliaceae*
Category: *Lonicera*
Species: *Lonicera japonica*
Thunb

Lonicera japonica is widely cultivated as an ornamental plant. High frost resistance. In the city of Samarkand, this species is suitable for urban conditions with its beautiful flowers and a long day of flowering in June-July. The scent of the *Lonicera japonica* flower is fragrant and spreads over tens of meters. The flowers of *Lonicera japonica* are bilingual white and yellowish. In autumn, a black spherical with a diameter of 3-4 mm of the fruit consists of several seeds [12].



Wisteria sinensis (Sims)
Sweet

Division: Magnoliophyta
Class: Magnoliopsida
Family: Fabaceae
Category: Wisteria
Species: *Wisteria sinensis* (Sims) Sweet

Wisteria sinensis is a liana with a decorative appearance with a perennial landscape. *Wisteria sinensis* blooms in the spring season from April to May, can also re-bloom in August-September. Flowers are

2-5 cm long purple, light purple, weakly scented, very dense inflorescences 15-30 cm long. Resistant to urban conditions and cold temperatures up to -25°C, grows very quickly[8]. In the city of Samarkand, today the glycine Liana is mainly planted on the streets, in gardens. Attracts the attention of people with the attractive appearance of their flowers.



Campsis radicans (L.)
Seem

Division: Magnoliophyta
Class: Magnoliopsida
Family: Bignoniaceae
Category: *Campsis*
Species: *Campsis radicans* (L.) Seem.

Campsis radicans are planted along the ground in trees, other plants, structures or corridors. Perennial ornamental liana growing up to 10 meters in length.

Campsis radicans forms a covering that densely covers buildings. The leaves are opposite and complex. It blooms mainly in the summer months. Widely used in decorative landscape and vertical greening [12].

Table 1. RECOMMENDATIONS FOR THE ASSORTMENT OF PERENNIAL LIANAS FOR VERTICAL LANDSCAPING IN THE LANDSCAPING OF THE CITY OF SAMARKAND

№	The Species of name	Total length meter	Scenic ness		Drought resistant	Cold resistant	Reaction to light	Lifespan year	Dust resistance	Application
			Flower	Leaf						
1	<i>Parthenocissus quinquefolia</i> (L.) Planch	20-30		+	R.	R.	R.s.r	70	R.	Pavilions are walls, fences, pergolas, fences
2	<i>Wisteria sinensis</i> (Sims) Sweet	15-20	+	+	R	M.r	L.l.p	70	R	Pavilions are walls, fences, pergolas, fences
3	<i>Lonicera periclymenum</i> L.	10-15	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
4	<i>Lonicera caprifolium</i> L.	15	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
5	<i>Lonicera japonica</i> Thunb.	10	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
6	<i>Campsis radicans</i> (L.) Seem.	10	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
7	<i>Clematis serratifolia</i> Rehd	20	+	+	R	R	L.l.p	20	R	Pavilions are walls, fences, pergolas, fences
8	<i>Clematis jackmanii</i> T. Moore	3-4.5	+	+	R	R	L.L.p	20	R	Pavilions are walls, fences, pergolas, fences
9	<i>Schizandra chinensis</i> (Turcz.) Baill.	6-8	+	+	R	R	R.s.r.	50	R	Pavilions are walls, fences, pergolas, fences
10	<i>Menispermum dahuricum</i> DC. Lunosemyannik	4	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
11	<i>Hedera colchica</i> C. KoCh.	30	+	+	R	R	L.l.p	50	R	Pavilions are walls, fences, pergolas, fences
12	<i>Hedera helix</i> L.	3-20	+	+	R	R	L.l.p	80	R	Pavilions are walls, fences, pergolas, fences

Conditional characters: R.- resistant. M.r.- Moderately resistant L.l.p.– Light loving plants. R.s.r. - relatively shade resistant

The table above lists 12 species of perennial ornamental Liana. Among the ornamental perennial lianas, the fastest growing is *Parthenocissus quinquefolia* up to 20-30 meters in total length. The flower of the listed lianas other than *Parthenocissus quinquefolia* is beautiful due to the nature of the scenery. The leaves, on the other hand, have 12 species of Liana that are also scenic. Perennial lianas on the table are all resistant to drought and Frost. *Parthenocissus quinquefolia* and *schizandra chinensis* are relatively shade tolerant, *wisteria sinensis*, *lonicera periclymenum*, *lonicera japonica*, *campsis radicans*, *clematis serratifolia*, *clematis jackmanii*, *schizandra chinensis*, *menispermum dahuricum*, *hedera colchica*, *hedera helix* are light-loving plants. The habitable lianas are *Hedera helix* 80 years, *parthenocissus quinquefolia* and *wisteria sinensis* 70 years, *lonicera periclymenum*, *lonicera caprifolium*, *lonicera japonica*, *campsis radicans*, *schizandra chinensis*, *menispermum*

dahuricum, *hedera colchica* 50 years, *clematis serratifolia*, *clematis jackmanii* 20 years. All types of lianas in the table have high dust resistance. Ornamental perennial lianas are used in the decoration of pavilions, walls, fences, pergolas, fences.(Table 1)

It was noticed that the studied species of liana in tropical and temperate climates exhibit features characteristic of the region. In the conditions of the Samarkand region, an increase in air temperature leads to a decrease in soil moisture. To do this, it is desirable to constantly monitor humidity and temperature in areas where liana species are planted. The studied species of liana reproduce well mainly by seeds and cuttings with high germination. *Hedera helix* is widely used in the landscaping of the city of Samarkand, mainly because of its evergreenness and longevity during the four seasons of the year. All perennial vines are resistant to drought, frost, pollen.

References

1. Przywara L., Pandey K. K. Sanders P. M. Length of stigmata as an indicator of ploidy level in *Actinidia deliciosa* // N.Z.J. Bot. 1988. 26. № 2. -P. 179-182.
2. Balagurova Compiled A. M. Opit introduksii vidov Roda *Actinidia* Lindl. V usloviah G. Tashkenta // Dendrology Uzbekistana. Organization: Science, 1975. T. VI. S. 177-226.
3. Kalmykova Compiled A. L. Ispolzovanie Lian V vertikalnom ozelenenii naselennix punktov stepi I lesostepi Povoljya. Diss. ... Kand. s / X naok. -Volgograd: 2009. -P.159.
4. Liani, biology IX I ispolzovanie. -L.: "Nauka", 1973. -P.260.
5. Denisov N.I. Derevyaniestie Liani Rossiyskogo Dalnego Vostoka: biology,introduction, ispolzovanie, oxrana. Diss...Doc.. Biol. Nauk. -Vladivostok: 2004. -P. 376.
6. Falkova T.V., Donyushkina E. A., Fursa D. I., Smirnova T. A. Ustoychivost vidov clematisa razlichnogo ekologo-geograficheskogo proiskhozhdeniya v atmosfernoy zasukhe. Ecology. 1987. № 6. -S. 64-67.
7. Ismailov M.I. Itogi introduksii drevsnix Severnoy Ameriki v Tsentralnom botanicheskom Sadu // izv. MOST RT. OTD. Biol. I MED. Nauk. 2001a. № 1 (142). -S. 49-70.
8. Shikanyan T.D. Azbuka manziltного design. -M.: Gladez Boxing, 2010. -P.144.
9. Belinskaya N.K., Shokova R.N. Zasuxoustoychivost Lian iz Roda *Clematis* (Ranunculaceae) // Botanicheskyy Journal. 1977. T. 62. № 9. S. 1341-1345. <https://uztext.com/45796-text.html>
10. Adilov Z.H. Landscape design. Tutorial. ODG 712.00: 712.4.01. -Tashkent: 2021. -P. 280.
11. <https://tekhnosfera.com/urboekologicheskiiy-podhod>.
12. Эргашева Г.Н. Исторические аспекты по интродукции, география распространения и испытания в культуре древовидных. лиан. -Петрозаводск: 2017, -С. 694-699.

REZYUME. O'rganilgan liana turlari tropik va mo'tadil iqlim mintaqaga xos xususiyatlarni o'zida namoyon etganligi kuzatildi. Samarqand viloyati sharoitida havo haroratining ortishi tuproqdagi namlikning kamayishiga olib keladi. O'rganilgan liana turlari asosan urug' va qalamchadan yaxshi ko'paytirildi unuvchanligi yuqori. Samarqand shahrini ko'kalamzorlashtirishda asosan yilning to'rt faslida doimiy yashil va uzoq umr ko'rganligi uchun *hedera helix* dan keng foydalanishni joriy etildi.

РЕЗЮМЕ. Было замечено, что изученные виды лианы в тропическом и умеренном климате проявляют в себе черты, характерные для региона. В условиях Самаркандской области повышение температуры воздуха приводит к снижению влажности почвы. Изученные виды лианы хорошо размножаются преимущественно семенами и черенками с высокой всхожестью. В озеленении города Самарканд широко используется *Hedera helix*, в основном из-за его вечнозелености и долголетия в течение четырех сезонов года.

SUMMARY. It was noticed that the studied species of liana in tropical and temperate climates exhibit features characteristic of the region. In the conditions of the Samarkand region, an increase in air temperature leads to a decrease in soil moisture. To do this, it is desirable to constantly monitor humidity and temperature in areas where liana species are planted. The studied species of liana reproduce well mainly by seeds and cuttings with high germination. *Hedera helix* is widely used in the landscaping of the city of Samarkand, mainly because of its evergreenness and longevity during the four seasons of the year.