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PROPAGATION OF NARROW-LEAVED VARIETY OF STANDISH HONEYSUCKLE (*LONICERA STANDISHII* JACQUES VAR. *LANCIFOLIA* REHDER) BY SOFTWOOD CUTTINGS

Summary. Better results of propagation of Standish honeysuckle (*Lonicera standishii* Jacques var. *lancifolia* Rehder) are obtained when using softwood cuttings cut under the node. The mean rooting percentage depends also on the applied rooting stimulator. The number of roots per cutting and their length did not differ significantly in individual experimental variants.

Key words: *Lonicera standishii*, honeysuckles, propagation, softwood cuttings

Introduction

Lonicera standishii Jacques, i.e. Standish honeysuckle, is a little known species, found primarily in botanical gardens and arboreta. BIAŁOBOK and HELLWIG (1955) described it as follows: "a very beautiful shrub; however, it is frost-sensitive, thus it may recommended only for the warmest areas in the western part of Poland". Standish honeysuckle is a shrub reaching the height of up to 1.5 m. It is characterized by a compact habit, and raised, stiff shoots covered by strigose hairs. Leaves are stiff, dark green, winter-hard or semi-winter hard. They are ovi-lanceolate, 5-10 cm long, covered with coarse hairs, stipitate. Flowers are pinkish-white, with a very strong smell resembling that of lily-of-the-valley. The plant blooms before leaves develop, in March–April. Fruits are scarlet red, shiny, coalescent and with two growing on one fruit stalk, they ripen in June–August. The plant originates from China (BIAŁOBOK and HELLWIG 1955). It requires fertile, sufficiently moist soils. It is shade-tolerant (HRYNKIEWICZ-SUDNIK et AL. 2001). *Lonicera standishii* Jacques var. *lancifolia* Rehder – narrow-leaved variety of Standish's honeysuckle, is characterized by narrow, lanceolate leaves, up to 8 cm long. It may be found in cultivation in countries with a mild climate (BIAŁOBOK and HELLWIG 1955).

Material and methods

The experiment on the propagation of Standish's honeysuckle was conducted in the years 2005-2006 in a plastic tunnel of 3 × 10 × 1.5 m placed in an unheated greenhouse. Cuttings were collected in mid-July from maternal plants aged between 10 and 20 years old, cultivated in the Botanical Garden of Adam Mickiewicz University of Poznań. Two types of cuttings were used – the first factor differentiating the experimental variants: cuttings cut under the node and cuttings cut over the node. The second factor differentiating the combinations was the application of a rooting stimulator. Preparations Rhizopon AA 2% and Ukorzeniacz AB were used. For each combination a control was applied, in which cuttings were not treated with a growth stimulator. Standish's honeysuckle cuttings were rooted in a 1:1 (v:v) mixture of highmoor peat and perlite, pH (H_2O) 5.0. Cuttings were placed in the substrate at the depth of 3-4 cm and preventive spraying with a fungicide Topsin M 70 WP at a concentration of 0.1% was applied. The measure was repeated after 10 days using Euparen 50 WP at a concentration of 0.2%.

In each combination a total of 120 cuttings were rooted in three replications with 40 cuttings each. Results concerning the number and length of secondary roots on the cutting were analysed statistically using a two-way analysis of variance. Data determining the percentage of rooted cuttings were subjected to the Bliss transformation. Means were compared using the Newman-Keuls test.

Results

In the conducted experiment a higher percentage of rooted cuttings was found for cuttings cut under the node (Fig. 1).

The application of Rhizopon AA containing 2% IBA (33 and 39%) did not have an advantageous effect on the analysed character in comparison with Ukorzeniacz AB (0.3% NAA + 0.05% IBA + 2% Benomyl + 1% Kaptan + 5% active carbon) and a control (52 and 54%, and 55%, respectively). Results confirm findings by GEORGES et AL. (1992) on the advantageous effect of both active substances on rhizogenesis in genus *Lonicera*. The number of roots determined on the cuttings ranged from 9.1 (for cuttings cut over the node and treated with Rhizopon AA) and 12.3 (for cuttings under the node in the control). The application of rooting stimulators did not have a significant effect on the analysed character (Fig. 2).

The length of roots was similar in all variants. Only cuttings cut under the node in the control (8.7 cm) had significantly smaller root lengths than the other cutting types. Also cuttings cut under the node treated with Ukorzeniacz AB did not reach 10 cm in length (Fig. 3).

The total root length on cuttings ranged from 84.4 cm for cuttings cut over the node and treated with Ukorzeniacz AB to 104.4 cm for cuttings cut under the node for the control (Fig. 4). Only the latter had statistically better values than the others.

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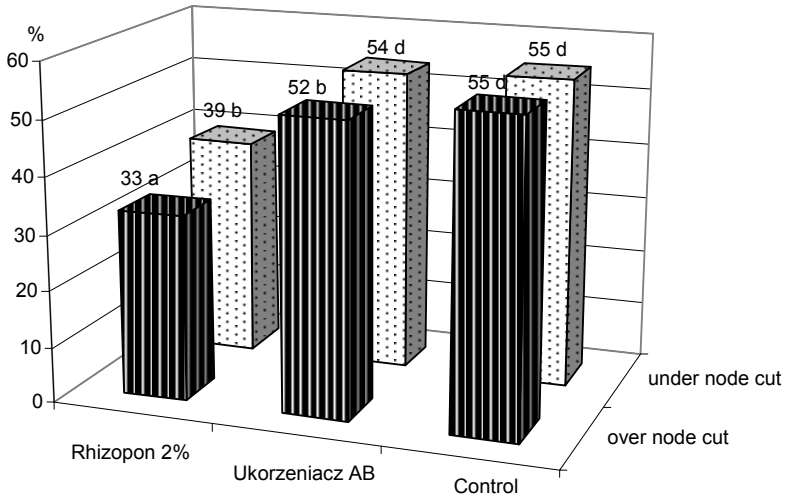

Fig. 1. Influence of cutting type and applied rooting stimulator on percentage of rooting (values for individual factors denoted with identical letters do not differ statistically at the level of significance $\alpha = 0.05$)
Rys. 1. Wpływ typu sadzonek oraz zastosowanego ukorzeniacza na procent ukorzenienia (dane dla poszczególnych czynników oznaczone tą samą literą nie różnią się statystycznie na poziomie istotności $\alpha = 0,05$)

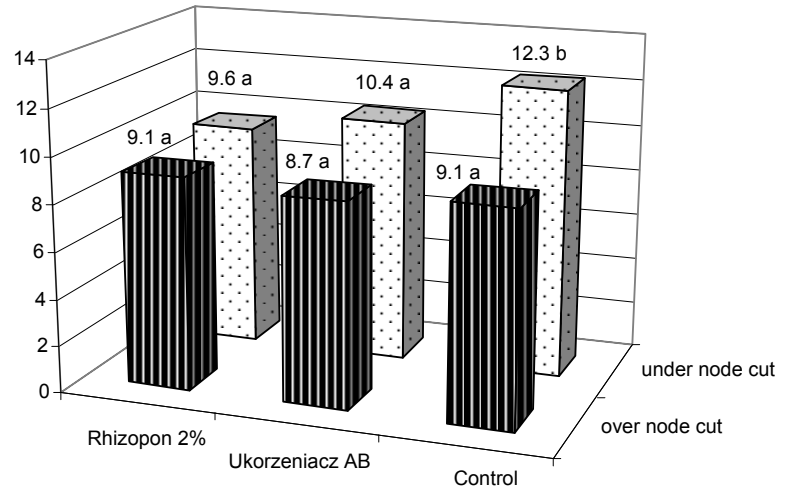

Fig. 2. Mean number of roots per cutting in terms of cutting type and applied rooting stimulator (values for individual factors denoted with identical letters do not differ statistically at the level of significance $\alpha = 0.05$)
Rys. 2. Średnia liczba korzeni na ukorzenionych sadzonkach w zależności od ich typu oraz zastosowanego ukorzeniacza (dane dla poszczególnych czynników oznaczone tą samą literą nie różnią się statystycznie na poziomie istotności $\alpha = 0,05$)

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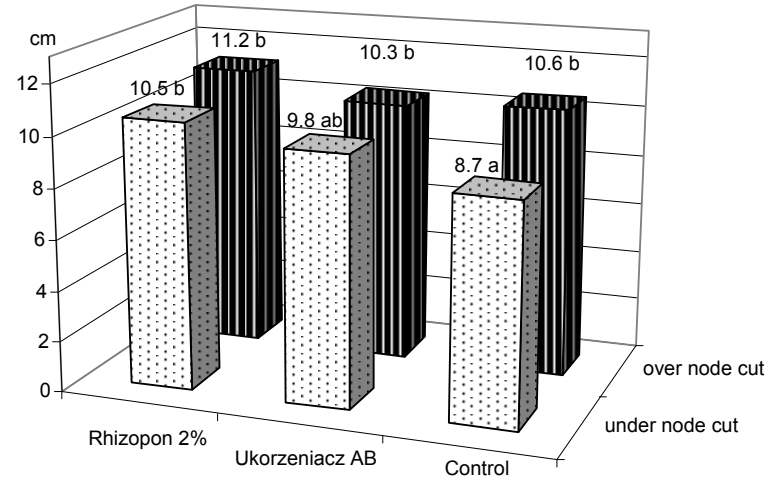

Fig. 3. Mean length of roots per cutting in terms of cutting type and applied rooting stimulators (values for individual factors denoted with identical letters do not differ statistically at the level of significance $\alpha = 0.05$)
Rys. 3. Średnia długość korzeni na ukorzenionych sadzonkach w zależności od ich typu oraz zastosowanego ukorzeniacza (dane dla poszczególnych czynników oznaczone tą samą literą nie różnią się statystycznie na poziomie istotności $\alpha = 0,05$)

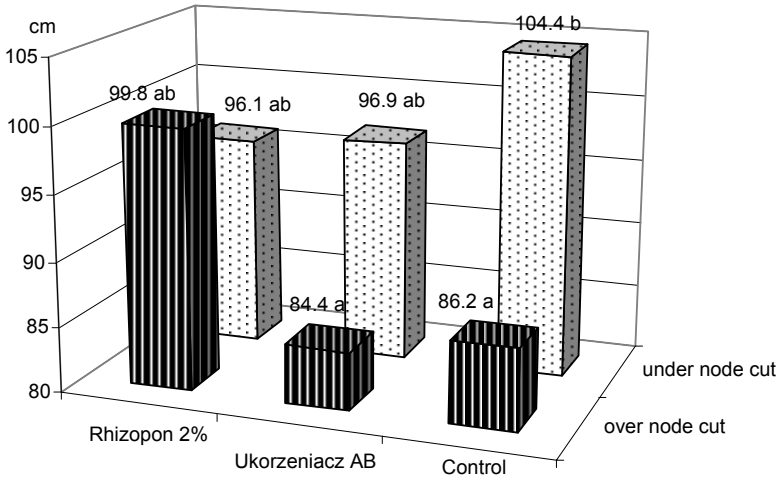

Fig. 4. Mean total length of roots per cutting in terms of cutting type and applied rooting stimulator (values for individual factors denoted with identical letters do not differ statistically at the level of significance $\alpha = 0.05$)
Rys. 4. Średnia sumaryczna długość korzeni na ukorzenionych sadzonkach w zależności od ich typu oraz zastosowanego ukorzeniacza (dane dla poszczególnych czynników oznaczone tą samą literą nie różnią się statystycznie na poziomie istotności $\alpha = 0,05$)

Discussion

Propagation of this taxon has not been described in detail in available literature. HRYNKIEWICZ-SUDNIK et AL. (2001) reported that *L. standishii* is difficult to propagate using cuttings or scions. It is recommended to propagate this species by grafting in a greenhouse on potted *L. tatarica* rootstock in February–March, followed by planting grafts outdoors in the spring. MAROSZ (2001) was of a different opinion, saying that honeysuckles propagate easily. BÄRTELS (1982) recommended preparation of cuttings from forced plants in early spring or in June–July from plants growing outdoors. Rooted cuttings need to be protected against frost. Propagation is also possible from hardwood cuttings, prepared earlier and stored in a coolhouse or heeled in sand until spring. Cuttings of all species need to be treated with a rooting stimulator. In the recommendations for foresters involved in nursery production some authors reported that genus *Lonicera* may be propagated using softwood and hardwood cuttings (SZKÓŁKARSTWO LEŚNE... 1999). A mixture of peat and gravel (1:1, v:v) is recommended as a rooting substrate. He defined the time of cutting collection from maternal plants as June–August for softwood cuttings, and March–April for hardwood cuttings. In both cases the application of growth stimulators (IBA or IAA) in the form of talcum-based powder is recommended. Georges et AL. (1992) in their studies on the possible application of new plant propagation techniques (micropropagation, protoplast and callus cultures) observed an advantageous action of NAA at a concentration of 2 mg/l with the addition of 0.5 mg/l BA. They also showed it was not possible to use 2.4-D substances for rhizogenesis under *in vitro* conditions. Obtaining over 50% rooted cuttings in the control indicates a considerable rhizogenesis potential in Standish's honeysuckle. The claim that this species is difficult to propagate using cuttings (HRYNKIEWICZ-SUDNIK et AL. 2001) results most probably from a lack of reliable studies on this taxon.

Conclusions

1. Cuttings of *Lonicera standishii* Jacques var. *lancifolia* Rehder cut under the node root better.
2. The number and length of roots on cuttings of Standish honeysuckle are not affected by agents stimulating root development.
3. Rooted cuttings of good quality were produced in all applied combinations.

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ROZMNAŻANIE SUCHODRZEWU STANDISHA W ODMIANIE WĄSKOLISTNEJ (*LONICERA STANDISHII* JACQUES VAR. *LANCIFOLIA* REHDER) ZA POMOCĄ SADZONEK PÓŁZDREWNIAŁYCH

Streszczenie. Lepsze rezultaty rozmnażania suchodrzewu Standisha (*Lonicera standishii* Jacques var. *lancifolia* Rehder) uzyskujemy, stosując sadzonki półzdrewniałe cięte pod węzłem. Średni procent ukorzenienia zależy także od zastosowanego stymulatora. Liczba korzeni przypadająca na sadzonkę oraz ich długość nie różniły się w poszczególnych kombinacjach.

Słowa kluczowe: *Lonicera standishii,* suchodrzew, rozmnażanie, sadzonki półzdrewniałe

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