

Assessing the occurrence of *Vitis vinifera* subsp. *sylvestris* (C. C. Gmelin) Hegi in the Czech Republic

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ABSTRACT: The objective of the paper is taxonomic evaluation of a woodland grape individual found near the Dyje river. The finders (VICHEREK et al. 2000) determined the liana as *Vitis vinifera* subsp. *sylvestris*. Based on microscopic observations of bud sections some doubts were cast on the classification to the subspecies of *sylvestris*. Correct determination will be possible only on the basis of further observations of the found individual and its comparison with real members of the taxon (Čenkov, SR).

Keywords: *Vitis vinifera* subsp. *sylvestris*; woodland grape; occurrence in the Czech Republic

Findings of seeds in fluvial sediments from the locality Dolnomoravský úval and from other places in the Czech Republic from the Slavonic Age indicate that *Vitis vinifera* subsp. *sylvestris* (C. C. Gmelin) Hegi – woodland grape can unambiguously be considered as an autochthonous species for the Czech territory. Compared with today, the natural range of woodland grape used to be much larger in the Holocene climatic optimum. Nowadays, the confluence area of the rivers Morava and Dyje in southern Moravia can be taken as a part of the northern boundary of the range (OPRAVIL 1987).

Only general records of recent occurrence of the woodland grape were available in the Czech Republic for a long time (DOSTÁL 1950 and HEGI 1925 in BLATNÝ 1967). A critical assessment of the occurrence of woodland grape in the former Czechoslovak Socialist Republic was made by BLATNÝ (1967), who arrived at a conclusion that the plant did not occur in the territory of the country. Similarly, ARNOLD et al. (1998) were convinced that the occurrence of woodland grape in the territories of the Czech and Slovak Republics could not be assessed due to the lack of information. In the most recent literature, findings of woodland grape are described from three localities in Slovakia and one in the Czech Republic (MAGLOCKÝ 1999). As to the Czech locality, MAGLOCKÝ referred to a newly discovered polycorm of woodland grape that was found near the Dyje river above the confluence with the Morava river in

1996 (VICHEREK et al. 2000). This finding made HOLUB and PROCHÁZKA (2000) list the woodland grape in the Red Paper of Vascular Plants in the Czech Republic as a critically endangered species.

The goal of the study was to verify if the newly found grape polycorm, the only one known in the Czech Republic, actually belongs to the taxon of *Vitis vinifera* subsp. *sylvestris*.

MATERIAL AND METHODS

MORPHOLOGY

All sources in the technical literature mention the main difference between the woodland grape and the cultural wine grape is the sex of flowers. While the flowers of woodland grape are unisexual and the species is dioecious, *Vitis vinifera* subsp. *vinifera* (genuine wine grape) has bisexual flowers or flowers that are functionally female (e.g. BAYER 1919; KOBLÍŽEK 1997; ARNOLD et al. 1998). Other morphological differences relate to the size of fruits (that is smaller in woodland grape), fruit taste (that is acidic in woodland grape and sweet in genuine wine grape), number of seeds in the berry (usually 3 in woodland grape and 2 in genuine wine grape), shape of seeds (spherical seeds with a short beak in woodland grape and pear-shaped seeds with a longer beak in genuine wine grape),

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Fig. 1. Liana of the studied grape specimen climbing into the crown of pedunculate oak

and width of basal leaf blade lobe (that is wider in woodland grape than in genuine wine grape). There is a sexual dimorphism described in woodland grape,



Fig. 2. Samples were collected from the already formed bunches of floral buds

manifested mainly in the shape of leaves. However, the variability of morphological vegetative traits is great (ARNOLD et al. 1998).

LOCALITY

The sole recent locality in the Czech Republic with a polycorm described as woodland grape that both VIČHEREK et al. (2000) and MAGLOCKÝ (1999) consider to be a male specimen is situated some 5 km south of Břeclav, near the left bank of the Dyje river. The polycorm grows on a glade in a floodplain forest on the edge of a drying out arm of the river. The liana (Fig. 1) climbs up into the crown of a sizeable pedunculate oak (*Quercus robur* L.). The locality near Čenkov in Slovakia is situated in the stand on the left bank of the Danube; there are also fruiting female lianas climbing up the stems of white poplars (*Populus alba* L.).

SAMPLE COLLECTION AND MICROSCOPIC SECTIONS

The locality near the Dyje river was visited on 6 June, in September 2001 and on 17 July 2002. In 2001, the climber had already developed bunches with floral buds that were however before blooming (Fig. 2). This is why the samples were taken from several inflorescences. The buds were cut lengthwise in the laboratory and the rudiments of sexual organs were analysed under the microscope (NIKON SMZ-2T). The macroscopic image was documented by a digital camera (NIKON COOLPIX 950) at a 60-fold magnification. Buds of genuine wine grape from a locality in Brno were collected at the same time and subjected to the identical analysis for comparison. Visiting the place in Septem-



Fig. 3. Axial section through the bud of the studied woodland grape specimen clearly shows the rudiments of stamina with pollen grains and pistil. In the pistil the ovary with eggs and stigma is clearly discernible



Fig. 4. Lengthwise section through the bud of genuine wine grape from a locality in Brno

ber 2001 and July 2002, the authors did not find any fruits on the climber.

The locality near the Danube was visited on 17 July 2002 and observations also included the fruiting female specimens. On this date, hardwood and softwood cuttings were taken from both localities to be used for comparative studies.

RESULTS AND DISCUSSION

The lengthwise sections through the floral buds of woodland grape from the Dyje river floodplain (Fig. 3) clearly show fully functionally developed rudiments of both male sexual organs (stamina) and female sexual organs (pistils). The pistils usually contained two ovaries. The section of buds of genuine wine grape from Brno (Fig. 4) gives a similar picture.

All sampled floral buds of the climber described as woodland grape were bisexual. The finding made the authors doubt whether the specimen should be taken as woodland grape. It is probably just a wild specimen of common grape. Therefore woodland grape is a species demonstrably without any natural locality of occurrence in the Czech Republic at the present time. It is not excluded though that the species grows or will be growing somewhere within the complex of floodplain forests of the Dyje–Morava alluvial plain since the nearest woodland grape range is in Austria, in the alluvial plain of the lower Morava river near the village Marchegg (SCHRATT-EHRENDORFER 1999; ARNOLD et al. 1998), although the data from the Slovak bank of the Morava river recorded in 1923 (DEGEN et al. in MAGLOCKÝ 1999) have not been corroborated recently.

CONCLUSION

It was found out that the mentioned woodland grape specimen from the sole recent locality in the Czech

Republic is bisexual. Its determination as *Vitis vinifera* subsp. *sylvestris* (C. C. Gmelin) Hegi was therefore cast doubt upon. The cuttings collected from localities in the Czech Republic and in Slovakia will be cultivated in the Botanical Garden and Arboretum of Mendel University of Agriculture and Forestry in Brno and used for comparative investigations. The unambiguous and correct taxonomic classification of the specimen at issue will be possible only on the basis of their results. It is therefore advised in this connection – before the problem is finally resolved – to make a revision of the Red Paper of Vascular Plants in the Czech Republic and to reclassify woodland grape from the category of critically endangered taxa into the category of taxa requiring special attention, extinct or unaccounted.

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Hodnocení výskytu *Vitis vinifera* subsp. *sylvestris* (C. C. Gmelin) Hegi v České republice

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ABSTRAKT: Předmětem článku je taxonomické hodnocení jedince révy nalezeného u řeky Dyje. Líána byla nálezci (VICHEREK et al. 2000) určena jako *Vitis vinifera* subsp. *sylvestris*. Na základě mikroskopického pozorování řezů pupenů bylo zařazení k subspecii *sylvestris* zpochybněno. Správné určení bude možné provést až na základě srovnávacích pozorování nalezeného jedince se skutečnými příslušníky taxonu (Čenkov, SR).

Klíčová slova: *Vitis vinifera* subsp. *sylvestris*; réva vinná lesní; výskyt v České republice

Vitis vinifera subsp. *sylvestris* (C. C. Gmelin) Hegi se na území České republiky během holocénního klimatického optima nepochybně vyskytovala, semena byla nalezena ve fluviálních sedimentech v dolnomoravském úvalu z doby slovanské (OPRAVIL 1987). Patří proto nepochybně k autochtonním druhům naší flóry. Recentní areál je však méně rozsáhlý a území jižní Moravy se nachází na jeho severní hranici. O současném výskytu révy vinné lesní na území České republiky nebyly dlouho žádné důkazy (např. BLATTNÝ 1967). V roce 1996 byl objeven jeden statný polykormon révy v lužních lesích Dyjsko-moravské nívy, VICHEREK et al. (2000) jej prezentují jako révu lesní. Tento nález je uveden také v Červené knize ČR a SR (ČEŘOVSKÝ et al. 1999) a vychází z něho zařazení

taxonu jako kriticky ohroženého pro ČR v nejnovějším Červeném seznamu cévnatých rostlin (HOLUB, PROCHÁZKA 2000). Na makroskopických řezech květními pupeny odebranými z uvedeného exempláře jsme zjistili, že jde o květy oboupohlavné s dobře vyvinutými, funkčními samčími i samičími pohlavními orgány (obr. 3). Je proto pravděpodobné, že se nejedná o révu lesní, nýbrž že líána je zplanělým exemplářem révy vinné pravé (*Vitis vinifera* subsp. *vinifera*). Než budou provedena srovnávací pozorování na rostlinách vypěstovaných z odebraných řízků, bylo by vhodnější v Červeném seznamu uvádět tento poddruh révy pro naše území jako druh vyžadující si zvláštní pozornost, vyhynulý nebo alespoň jako neznámý.

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