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'Gabreta' saved from the ruins of oblivion

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Abstract

First announcement of a new forgotten historical cultivar of *Ribes x gonduini* Jancz., abundant by the ruins in the Bohemian Forest (CZ).

Prospecting the cultural relics of the vanished villages was the subject of an initial article "Reviving the Sudeten plant heritage" (KISSLING 2012). Many villages, hundreds of hamlets and thousands of isolated houses remained empty after the expulsion of the German-speakers in 1946 (<https://www.zanikleobce.cz>). In the abandoned gardens, invaded by nettles and goat willow, not only have fruit trees and herbaceous plants such as dame's violet, sweet williams, orange lilies, monkshood, various mints, lilac and some rose bushes survived, but so too have red currants, black currants and gooseberries. They represent the pre-war range of plants and may be hiding some treasures.



A red currant is retrieved from a pile of bricks - Kamenná Hlava near Volary, 920m. To reproduce it, only a division of the mother plant (or colony) is usually taken, which still survives in its place of origin.

Variety "X" common in the Bohemian Forest

Among the 250 ruins and rubble and a few current gardens visited to date between the Nové Hradky mountains and the Všeruby highlands, passing through the Bohemian Forest chain and its foothills, about 80 red or white currants were found. Over thirty of them form a homogeneous group, let us say the "X" group¹. This variety represents the great majority of the discoveries in the Prachatice – Český Krumlov – Volary triangle. It also still grows incognito in the gardens of the reoccupied Sudeten houses, or has been transplanted from a ruin.

Determining cultivars for conservation

The conservation of a woody gene pool is more costly than seed conservation. It would be unfair to store numerous unidentified red currant clones which would one day all turn out to be similar. In principle then, identification of the cultivar is therefore a condition for admission to a gene bank. But how are we to identify cultivar "X"?

¹ Updated 2018: about 500 ruins prospected with our colleague Petr Míšek, 225 currant bushes from these ruins, nearly 80 bushes „X“

Under the First Czechoslovak Republic, the great nurserymen such as JOSEF VAŇEK in Chrudim, the author of the wonderful “Popular Pomology”, were familiar with a wide assortment of old varieties. Their knowledge vanished with them. Moreover, the classic descriptions are not specific enough to reach a definite identification. Even the pomology of the Czechoslovak Academy of Sciences (BLATTNÝ et al., 1971), one of the best in the world regarding red currants, is not up to it.

It is therefore necessary to compare the unknown “X” with a reliable collection of reference cultivars if possible. Many thanks go to the genebanks which have supplied us at no cost with clones for scientific purposes: The plant breeding sites of Velké Losiny, Bojnice and Holovousy (SK, CZ), the Pro Specie Rara Foundation of Basle (CH), the American genebank Corvallis in Alaska, the Austrian Obstwein Fruit Institute in Klosterneuburg, the James Hutton Institute in Dundee and the German Federal Agency for Varieties (Bundessortenamt), in Wurzen .

Since cultivated red currants were selected from wild European species, it would be useful to compare them with those. This is why we are also collecting wild clones. The total collection (Bohemian Forest, genetic and wild sources) currently amounts to 230 clones [about 400 in 2018]. Since 2014, the Holovousy Fruit Research Institute (CZ) has adopted the main clones found in the border area into the national gene bank. These are also offered to the German and Austrian gene banks and to the public through the Gengel public gene bank (<https://www.gengel.cz>).

How are we to compare redcurrants?

Biometry: between ancient and modern science

EDWARD JANCZEWSKI, director of the Botanic Garden of Krakow, wrote the botanical monograph on the genus *Ribes* in French, which was published in Geneva in 1907. He would no doubt have reasoned as follows: “You can see for yourself under the magnifying glass that the calyx of red currant X is ciliate like those of ‘Prince Albert’ and ‘Gondouin Red’; these cilia and the red of the flower, they come from its wild parent *Ribes petraeum*”. A century later, a molecular geneticist may one day declare that “the unknown X has many different alleles of different loci in its DNA in common with *petraeum*”. It is just that – as for



Under the microscope, the unmistakable verrucous cilia at the margin of a sepal of a wild *Ribes petraeum* (Swiss Alps)

other aspects of social life – contemporary biology does not always link to the previous findings from earlier stages, which is a pity for both then and now. We favour the words of Leibniz, the philosopher (1714): “I have found that most sects are largely correct in what they affirm, but less so in what they deny”. The desire for this work is to renew a bridge between the old morphology and modern genetics. This bridge existed during the second half of the 20th century: biometry. It is a modern method for morphology which consists of measuring and simple calculation on a computer. It also says: “The X red currants have an average of 64 cilia at the edge of each sepal; this is roughly the same as ‘Prince Albert’ (which has ~50) and

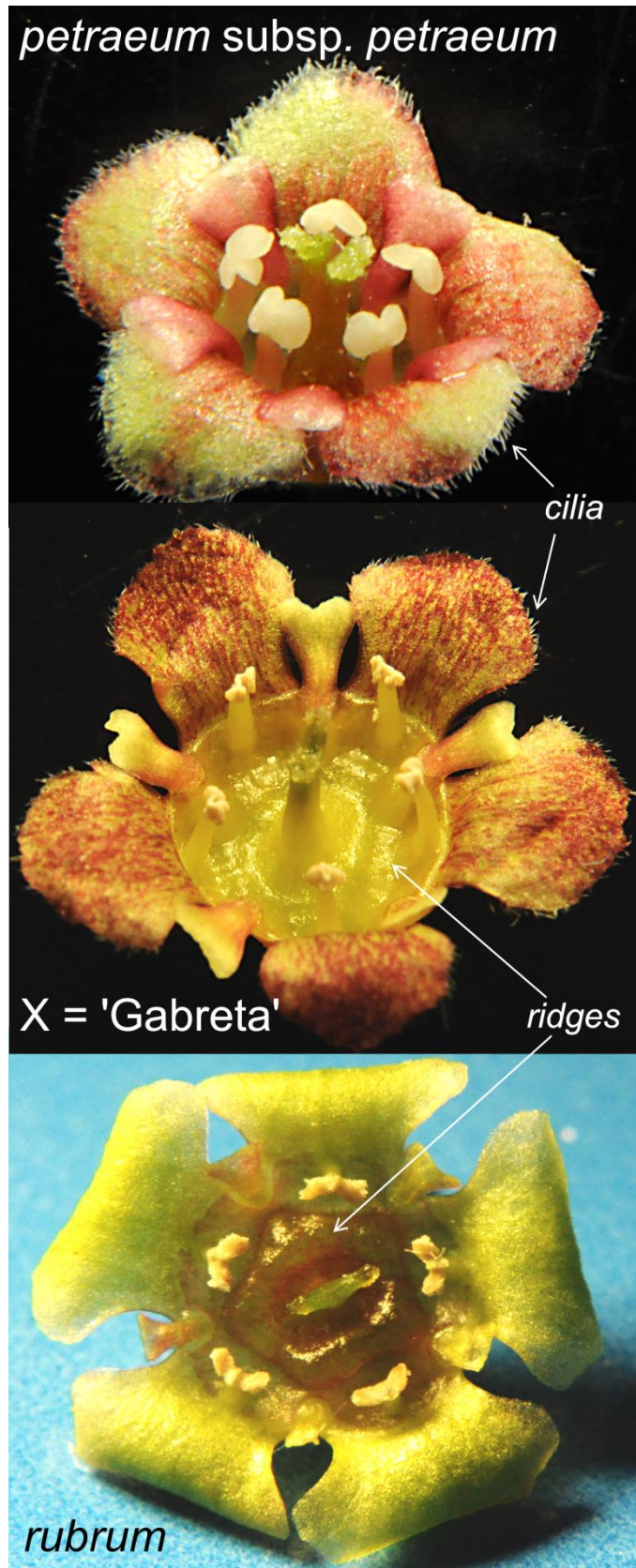
'Gondouin' (~43), which are considered to be hybrids of *petraeum*, and fewer than in the wild *petraeum*, which has about one hundred; these cilia only grow to about 180-230 microns, against 270 in *petraeum*; the microscope shows that they consist of unicellular hairs with verrucous walls, as in *petraeum*; X is therefore similar to a hybrid of the *petraeum* species; geneticists: take this information and show whether it is so or not!"

Obviously a trait is not enough. We cannot decide in advance which traits will be useful, so we measure and estimate everything that we find: bud burst dates, scent and various hairs of the young leaflets, length and width of all the parts of the flower (hypanthium and its nectariferous protuberances, calyx, petals, stamens and pistil) and the autumnal buds, together with the young shoots, berries and mature leaves. Overall, there are about 400 raw traits, plus 150 relationships calculated by the computer. It takes years to separate the significant traits from the irrelevant ones. Biometry looks at living plants which have many more traits than in a herbarium. But of course, the bushes have to be re-cultivated first and then monitored for at least one season. This type of research cannot be hurried.

An "old new" hybrid

We have seen that the "X" bush from the Bohemian Forest has significant traits of *Ribes petraeum*. However, there are only four hybrids mentioned for this species: 'Prince Albert', 'Earliest of Fourlands', 'Gondouin Red' and 'Palandt's Seedling'. Our "X" is distinguishable from them not only at first glance, but then by many dozens of traits. It is therefore an old variety so far not described.

If "X" is a hybrid of *Ribes petraeum*, this implies a second parent. Which is it? the morphology provides a clear answer – by a little simplification: the nectariferous disc of the hypanthium rises up facing the stamens in 5 rectilinear ridges, showing in the photograph as discreet



Red currant flowers. Paradoxically, the five large peripheral parts are not the corolla but sepals. The petals are the small triangular tongues lying between them. A flower of "X" with its parents: from *petraeum* it has the cilia, from *rubrum* the ridges

little gleaming ledges at the base of the stamens. Nectariferous ridges have long been known as a trait exclusive to the species *rubrum*. In pure *rubrum* plants they form a spectacular pentagonal ring (tinged with red in the lower plate). In “X” the lower ridge can be considered as a reduced parental trait, which is not rare among hybrids. So, as far as can be judged from the morphology, “X” is a *petraeum* x *rubrum* hybrid (*R. x gonduini* Jancz.).

Hybrids like this do not exist in nature, because the parents live so far apart. *Ribes petraeum* (Rock currant) is a rare inhabitant of the mountain maple and spruce groves of the high mountains from the Pyrenees to the western Tatra and Beskydy– it has not been found in the Bohemian Forest. *Ribes rubrum* (the common red currant) lives in the damp forests of the Atlantic region. They could only have crossed by the intervention of the grower. Even if grown next to one another, it is not easy to hybridise them, as they do not flower at the same time. The only known old hybrid x *gonduini* currently is ‘Gondouin Red’, which was first grown in France around 1830. Where, then, could the skill to make such a sophisticated selection as that of “X” have existed in the 19th century? The national archives of the Prachatice district (thank you for the comfortable access they provide!) say that no fruit nursery existed in the region before the war. Was “X” selected in Austria or in Bavaria and then brought in on one of the waves of colonisation that took place from the 17th century onwards? Or was it created in the selective Czech-Moravian melting-pot? In any case, the Slavic pomologies (ŘÍHA 1920, SUCHÝ 1931) do not mention anything similar and only contain current varieties. The civil peri-Alpine gene banks Arche Noah (A) and Pro Specie Rara (CH), which conserve many unidentified red currants², will be able to help in answering this first ethnobotanical question. It would also be good to research “X” in other central European mountains.

A memorial variety

The variety “X” from the Bohemian Forest will be described in detail and announced. It must be named in a language other than Latin. In Křišťanov it is called the “*German red currant*”. In Prachatice, the late Mr. Lebeda, a long-time nurseryman, used to tell his family: “*Keep this bush, it is the old Šumava!*”. We are indebted to Mrs. Menšík and Mrs. Lebeda for this precious information. These two popular names alone sum up centuries of painful history in the Sudetenland area. Variety “X” symbolises a region where relations between Czechs and Germans descended into cruel depths on both sides. A human memory was also cultivated along with the variety. Our independent work was founded on a questionable assumption: that memory coupled with a desire for objectivity is certainly painful, but as an antidote to contagious obedience and to hatred, it serves as a remedy for true reconciliation. We chose the name ‘Gabreta’.



‘Gabreta’: the deepest coloured and most acid of the red currants. But with enough sugar, its jelly is delicious

² Among these are other cultivated varieties related to *R. petraeum* and probably not yet described. (MF)

This is what the Celts named the range of mountains that we nowadays call the Šumava / Böhmerwald / Bohemian Forest. The word has outlived these ancient inhabitants of the region and will incidentally recall our own impermanence.

A useful variety?

'Gabreta' is a tall, robust bush (up to 2 metres), a late flowerer that keeps its leaves until the end of summer. These qualities are widely known for *Ribes petraeum*, knowingly used in selection and profitable in mountain climates. From the presumed second parent, *Ribes rubrum*, the selector wanted the sweetness. But 'Gabreta' did not inherit it at all – and nor did 'Gondouin Red'! It is the most acid variety in our collection and is often not used in domestic gardens. How is it that it became so popular here and usurped the place of 'Prince Albert', which was known and grown in the Bohemian Forest, equally resistant and very much sweeter? This is the second ethnobotanical enigma.

The red currant 'Gabreta' forms part of the main cultivated heritage of the era of German-Slavic coexistence in the Bohemian Forest. Its interest seems more historical and scientific rather than agronomic, but everything is open and the prospects for research are numerous. Its second life is only just beginning.

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