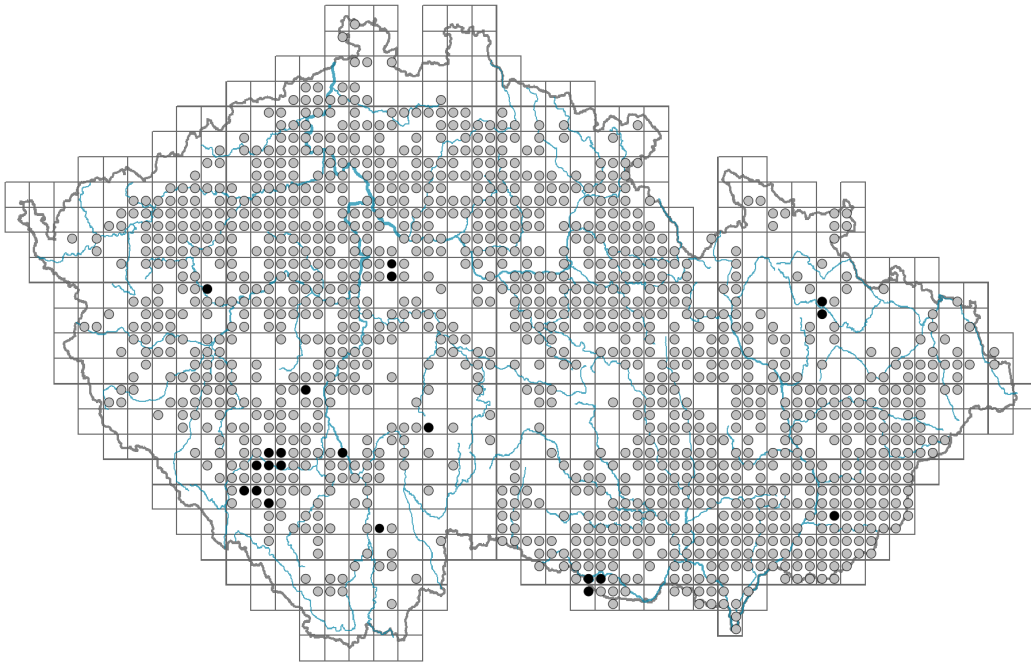


# Viola hirta

## Distribution



Map info

- revised records
- unrevised records

On the map are not visualized records without the coordinates and records marked as incorrect or doubtful.



## Habitus and growth type

Height [m]: **0.05-0.25**

Growth form: **clonal herb**

Life form: **hemicryptophyte**

Life strategy: **CSR - competitor/stress-tolerator/ruderal**

Life strategy (Pierce method based on leaf traits): **C/CSR**

Life strategy (Pierce method, C-score): **46.9 %**

Life strategy (Pierce method, S-score): **28.9 %**

Life strategy (Pierce method, R-score): **24.2 %**

## Leaf

Leaf presence and metamorphosis: **leaves present, not modified**

Leaf arrangement (phyllotaxis): **rosulate**

Leaf shape: **simple - entire**

Stipules: **present**

Petiole: **present**

Leaf life span: **summer green**

Leaf anatomy: **mesomorphic**

## Flower

Flowering period [month]: **March-May**

Flowering phase: **2 Acer platanoides-Anemone nemorosa (start of early spring)**

Flower colour: **white, blue-violet**

Flower symmetry: **zygomorphic**

Perianth type: **calyx and corolla**

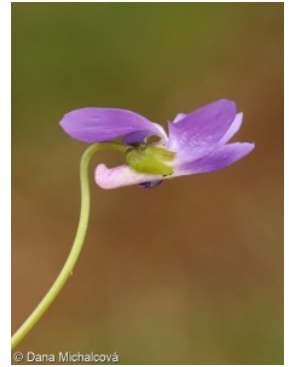
Perianth fusion: **free**

Calyx fusion: **aposepalous**

Inflorescence type: **flores solitarii**

Dicliny: **synoecious**

Pollination syndrome: **insect-pollination, selfing, cleistogamy**



## Fruit, seed and dispersal

Fruit type: **dry fruit - capsule**

Fruit colour: **violet, brown**

Reproduction type: **by seed/spores and vegetatively**

Dispersal unit (diaspore): **seed**

Dispersal strategy: **Allium (mainly autochory)**

Myrmecochory: **myrmecochorous**



## Belowground organs and clonality

Shoot metamorphosis: **rhizome-like pleiocorm**

Storage organ: **rhizome-like pleiocorm**

Type of clonal growth organ: **epigeogenous rhizome**

Freely dispersible organs of clonal growth: **absent**

Shoot life span (cyclicality): **monocyclic shoots prevailing**

Branching type of stem-derived organs of clonal growth: **monopodial**

Primary root: **absent**

Persistence of the clonal growth organ [year]: **4**

Number of clonal offspring: **0.7**

Lateral spreading distance by clonal growth [m]: **0.01**

Clonal index: **2**

Position of root buds: **lateral roots**

Role of root buds in life-history of a plant: **additive**

## Bud bank

Number of buds per shoot at the soil surface (root buds excluded): **5**

Number of buds per shoot at a depth of 0–10 cm (root buds excluded): **15**

Number of buds per shoot at a depth greater than 10 cm (root buds excluded): **0**

Size of the belowground bud bank (root buds excluded): **20**

Depth of the belowground bud bank (root buds excluded) [cm]: **4**

Number of buds per shoot at the soil surface (root buds included): **5**

Number of buds per shoot at a depth of 0–10 cm (root buds included): **17**

Number of buds per shoot at a depth greater than 10 cm (root buds included): **15**

Size of the belowground bud bank (root buds included): **37**

Depth of the belowground bud bank (root buds included) [cm]: **9**



## Trophic mode

Parasitism and mycoheterotrophy: **autotrophic**

Carnivory: **non-carnivorous**

Symbiotic nitrogen fixation: **no nitrogen-fixing symbionts**

## Karyology

Chromosome number (2n): **20**

Ploidy level (x): **4**

2C genome size [Mbp]: **1318.91**

1Cx monoploid genome size [Mbp]: **329.73**

Genomic GC content: **41.2 %**

## Taxon origin

Origin in the Czech Republic: **native**

## Ecological indicator values

Ellenberg-type indicator values

Light indicator value: **6 - transition between values 5 and 7; rarely at less than 20% of diffuse radiation incident in an open area**

Temperature indicator value: **5 - moderate heat indicator, occurring from lowland to montane belt, mainly in submontane-temperate areas**

Moisture indicator value: **3 - missing on damp soil**

Reaction indicator value: **8 - transition between values 7 and 9, occurring mostly in calcium-rich conditions**

Nutrient indicator value: **3 - occurring at nutrient-poor sites more frequently than at average sites and exceptionally at rich sites**

Salinity indicator value: **0 - not salt tolerant, glycophyte**

Indicator values for disturbance

Whole-community disturbance frequency indicator value: **-1.37**

Herb layer disturbance frequency indicator value: **-0.59**

Whole-community disturbance severity indicator value: **0.24**

Herb layer disturbance severity indicator value: **0.22**

Whole-community structure based disturbance indicator value: **0.29**

Herb layer structure-based disturbance indicator value: **0.4**

## Habitat and sociology

Occurrence in habitats

1 Vegetation of cliffs, screes and walls

1A Calcareous cliffs: **1 - rare occurrence**

1D Mobile calcareous screes: **1 - rare occurrence**

6 Meadows and mesic pastures

6A Mesic Arrhenatherum meadows: **2 - optimum**

6C Pastures and park grasslands: **1 - rare occurrence**

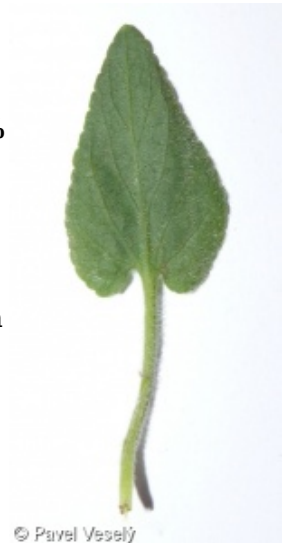
6D Alluvial meadows of lowland rivers: **1 - rare occurrence**

6F Intermittently wet Molinia meadows: **1 - rare occurrence**

8 Dry grasslands



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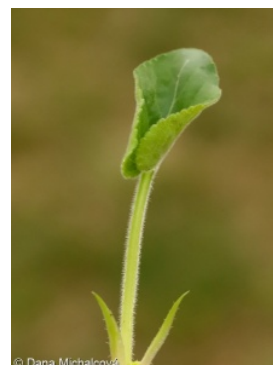
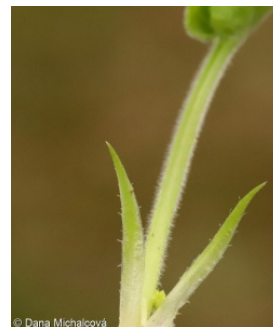


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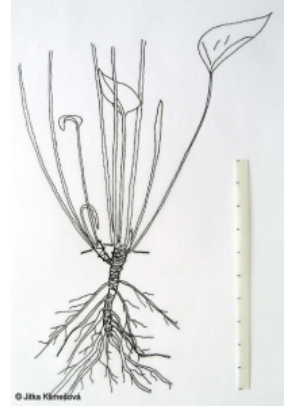


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- 8A Hercynian dry grasslands on rock outcrops: **1 - rare occurrence**
- 8B Submediterranean dry grasslands on rock outcrops: **2 - optimum**
- 8C Narrow-leaved sub-continental steppes: **1 - rare occurrence**
- 8D Broad-leaved dry grasslands: **2 - optimum**
- 8E Acidophilous dry grasslands: **1 - rare occurrence**
- 8F Thermophilous forest fringe vegetation: **2 - optimum**
- 9 Sand grasslands and rock-outcrop vegetation
- 9C Festuca grasslands on acidic sands: **1 - rare occurrence**
- 9F Basiphilous vegetation of spring therophytes and succulents: **1 - rare occurrence**
- 10 Saline vegetation
- 10I Inland saline meadows: **1 - rare occurrence**
- 11 Heathlands and scrub
- 11L Tall mesic and xeric shrub: **2 - optimum**
- 11N Low xeric scrub: **2 - optimum**
- 11R Scrub and pioneer woodland of forests clearings: **1 - rare occurrence**
- 12 Forests
- 12B Alluvial forests: **1 - rare occurrence**
- 12C Oak-hornbeam forests: **2 - optimum**
- 12D Ravine forests: **2 - optimum**
- 12F Limestone beech forests: **2 - optimum**
- 12H Peri-Alpidic basiphilous thermophilous oak forests: **2 - optimum**
- 12I Sub-continental thermophilous oak forests: **2 - optimum**
- 12J Acidophilous thermophilous oak forests: **2 - optimum**
- 12K Acidophilous oak forests: **1 - rare occurrence**
- 12O Peri-Alpidic pine forests: **2 - optimum**
- 12T Robinia pseudacacia plantations: **1 - rare occurrence**
- 12U Plantations of broad-leaved non-native trees: **1 - rare occurrence**
- 12V Spruce plantations: **1 - rare occurrence**
- 12W Pine and larch plantations: **1 - rare occurrence**
- 13 Anthropogenic vegetation
- 13D Perennial thermophilous ruderal vegetation: **1 - rare occurrence**
- 13E Perennial nitrophilous herbaceous vegetation of mesic sites: **1 - rare occurrence**
- 13F Herbaceous vegetation of forests clearings and Rubus scrub: **1 - rare occurrence**
- Affinity to the forest environment
- Affinity to the forest environment in Thermophyticum: **2.1 - taxon occurring both in the forest and open vegetation**
- Affinity to the forest environment in Mesophyticum and Oreophyticum: **2.1 - taxon occurring both in the forest and open vegetation**
- Diagnostic taxon
- Diagnostic taxon of alliances: [LCA Quercion pubescenti-petraeae](#)
- Diagnostic taxon of associations: [LCA01 Lathyro collini-Quercetum pubescentis](#), [LCA02 Lithospermo purpurocaerulei-Quercetum pubescentis](#), [LCA03 Euphorbio-Quercetum](#), [LCB01 Quercetum pubescenti-robotis](#), [THC04 Asplenio cuneifolii-Seslerietum caeruleae](#), [THE02 Cirsio pannonici-Seslerietum caeruleae](#), [THF02 Brachypodio pinnati-Molinietum arundinaceae](#)
- Constant taxon
- Constant taxon of alliances: [LCA Quercion pubescenti-petraeae](#)



Constant taxon of associations: [LCA01 \*Lathyro collini-Quercetum pubescentis\*](#), [LCA02 \*Lithospermo purpureocaerulei-Quercetum pubescentis\*](#), [LCA03 \*Euphorbio-Quercetum\*](#), [LCB01 \*Quercetum pubescenti-roboris\*](#), [THC04 \*Asplenio cuneifolii-Seslerietum caeruleae\*](#), [THE02 \*Cirsio pannonici-Seslerietum caeruleae\*](#), [THE03 \*Polygalo majoris-Brachypodietum pinnati\*](#), [THF02 \*Brachypodio pinnati-Molinietum arundinaceae\*](#)



### Ecological specialization indices

Ecological specialization index for all vegetation types: **4.6**

Ecological specialization index for non-forest vegetation: **5.2**

Ecological specialization index for forest vegetation: **4.8**

### Colonization ability

Index of colonization success (ICS): **7**

Index of colonization potential (ICP): **6**

Optimum successional age [years]: **35**

### Distribution and frequency

Floristic zone: **northern temperate, southern temperate, submeridional**

Floristic region: **Europe, Western Asia**

Distribution range extension along the continentality gradient: **6**

Elevational belt in the Czech Republic: **lowlands, colline belt, submontane belt**

Occurrence frequency in the basic grid mapping cells and quadrants of the basic grid mapping cells: **491**

taxon.data.freq\_in\_quad: **1283**

Commonness in vegetation plots from the Czech Republic

Occurrence frequency in vegetation plots: **2 %**

Occurrence frequency in vegetation plots with a cover above 5%: **3.4 %**

Occurrence frequency in vegetation plots with a cover above 25%: **0 %**

Occurrence frequency in vegetation plots with a cover above 50%: **0 %**

Mean percentage cover in vegetation plots: **2.5 %**

Maximum percentage cover in vegetation plots: **13 %**

Number of habitats with taxon occurrence in the Czech Republic

Number of narrow habitats in which the taxon occurs: **34**

Number of narrow habitats in which the taxon has its optimum: **13**

Number of broad habitats in which the taxon occurs: **8**

Number of broad habitats in which the taxon has its optimum: **4**

### Threats and protection

Red List 2017 (national categories): **taxon is not on the Red List**

Red List 2017 (IUCN categories): **LC(NA) - least concern (taxon is not on the Red List)**

Legal protection: **not protected by law**