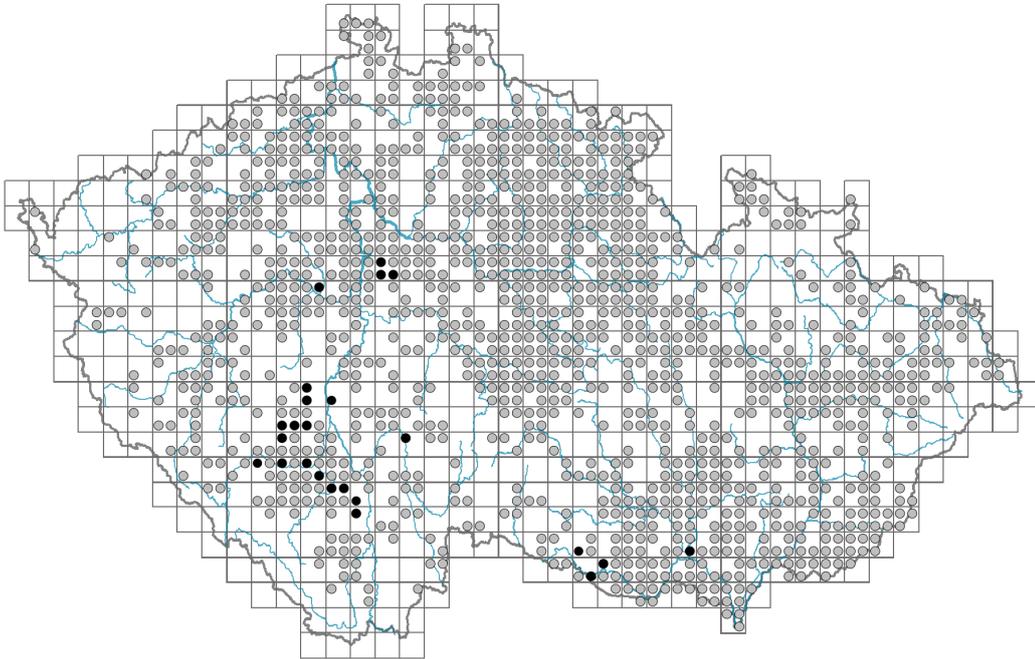


# Viola odorata

## Distribution



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### Map info

● revised records

○ unrevised records

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



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## Habitus and growth type

Height [m]: **0.1-0.2**

Growth form: **clonal herb**

Life form: **hemicryptophyte**

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

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

Life strategy (Pierce method, C-score): **34.5 %**

Life strategy (Pierce method, S-score): **23 %**

Life strategy (Pierce method, R-score): **42.4 %**

## Leaf

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

Leaf arrangement (phyllotaxis): **rosulate**

Leaf shape: **simple - entire**

Stipules: **present**

Petiole: **present**

Leaf life span: **evergreen**

Leaf anatomy: **mesomorphic**

## Flower

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

Flowering phase: **2 Acer platanoides-Anemone nemorosa (start of early spring)**  
 Flower colour: **white, pink, violet**  
 Flower symmetry: **zygomorphic**  
 Perianth type: **calyx and corolla**  
 Perianth fusion: **free**  
 Calyx fusion: **aposepalous**  
 Inflorescence type: **flores solitarii**  
 Dicliny: **synoecious**  
 Generative reproduction type: **mixed mating**  
 Pollination syndrome: **insect-pollination, cleistogamy**



### Fruit, seed and dispersal

Fruit type: **dry fruit - capsule**  
 Fruit colour: **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: **stolon, rhizome**  
 Storage organ: **stolon, rhizome**  
 Type of clonal growth organ: **stolon**  
 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]: **2.5**  
 Number of clonal offspring: **3.3**  
 Lateral spreading distance by clonal growth [m]: **0.07**  
 Clonal index: **5**



### Bud bank

Number of buds per shoot at the soil surface (root buds excluded): **15**  
 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): **30**  
 Depth of the belowground bud bank (root buds excluded) [cm]: **3**  
 Number of buds per shoot at the soil surface (root buds included): **15**  
 Number of buds per shoot at a depth of 0–10 cm (root buds included): **15**  
 Number of buds per shoot at a depth greater than 10 cm (root buds included): **0**  
 Size of the belowground bud bank (root buds included): **30**  
 Depth of the belowground bud bank (root buds included) [cm]: **3**



### 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]: **1312.94**

1Cx monoploid genome size [Mbp]: **328.24**

Genomic GC content: **41.2 %**

## Taxon origin

Origin in the Czech Republic: **archaeophyte**

Invasion status: **naturalized**

Geographic origin: **Mediterranean**

Period of introduction: **Early Middle Ages (550-1200)**

Introduction pathway: **intentional - ornamental**

## Ecological indicator values

Ellenberg-type indicator values

Light indicator value: **5x - semi-shade plant, only exceptionally occurring in full light, but usually at more than 10% of the diffuse radiation incident in an open area (generalist)**

Temperature indicator value: **6 - transition between values 5 and 7**

Moisture indicator value: **5 - indicator of fresh soils, focus on soils of average moisture, missing on wet and on soils that frequently dry out**

Reaction indicator value: **7x - indicator of slightly acidic to slightly basic conditions, never occurring in very acidic conditions (generalist)**

Nutrient indicator value: **7 - occurring at nutrient-rich sites more often than at average sites and only exceptionally at poor sites**

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

Indicator values for disturbance

Whole-community disturbance frequency indicator value: **-1.6**

Herb layer disturbance frequency indicator value: **-0.89**

Whole-community disturbance severity indicator value: **0.35**

Herb layer disturbance severity indicator value: **0.28**

Whole-community structure based disturbance indicator value: **0.24**

Herb layer structure-based disturbance indicator value: **0.25**

## Habitat and sociology

Occurrence in habitats

1 Vegetation of cliffs, screes and walls

1C Walls: **1 - rare occurrence**

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

6 Meadows and mesic pastures

6A Mesic Arrhenatherum meadows: **1 - rare occurrence**

8 Dry grasslands



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8F Thermophilous forest fringe vegetation: **1 - rare occurrence**

## 11 Heathlands and scrub

11L Tall mesic and xeric shrub: **1 - rare occurrence**

11N Low xeric scrub: **1 - rare occurrence**

11R Scrub and pioneer woodland of forests clearings: **2 - optimum**

## 12 Forests

12B Alluvial forests: **1 - rare occurrence**

12C Oak-hornbeam forests: **1 - rare occurrence**

12D Ravine forests: **2 - optimum**

12E Herb-rich beech forests: **1 - rare occurrence**

12H Peri-Alpidic basiphilous thermophilous oak forests: **2 - optimum**

12I Sub-continental thermophilous oak forests: **1 - rare occurrence**

12J Acidophilous thermophilous oak forests: **1 - rare occurrence**

12T Robinia pseudacacia plantations: **2 - optimum**

12U Plantations of broad-leaved non-native trees: **2 - optimum**

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: **2 - optimum**

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: [XDD Geo urbani-Alliarion petiolatae](#)

Diagnostic taxon of associations: [XCB11 Asclepiadetum syriacae](#), [XDD01 Alliarion petiolatae-Chaerophylletum temuli](#), [XDD03 Anthriscetum trichospermae](#)

### Constant taxon

Constant taxon of associations: [XDD03 Anthriscetum trichospermae](#)

### Ecological specialization indices

Ecological specialization index for all vegetation types: **3.8**

Ecological specialization index for non-forest vegetation: **3.9**

Ecological specialization index for forest vegetation: **4.6**

### Colonization ability

Index of colonization success (ICS): **6**

Index of colonization potential (ICP): **9**

Optimum successional age [years]: **39**

## Distribution and frequency

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

Floristic region: **Europe**

Distribution range extension along the continentality gradient: **5**

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: 504

taxon.data.freq\_in\_quad: 1224

Commonness in vegetation plots from the Czech Republic

Occurrence frequency in vegetation plots: **0.5 %**

Occurrence frequency in vegetation plots with a cover above 5%: **7.4 %**

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: **2.9 %**

Maximum percentage cover in vegetation plots: **18 %**

Number of habitats with taxon occurrence in the Czech Republic

Number of narrow habitats in which the taxon occurs: **21**

Number of narrow habitats in which the taxon has its optimum: **6**

Number of broad habitats in which the taxon occurs: **6**

Number of broad habitats in which the taxon has its optimum: **3**

### **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**