

**ANALYSIS OF POLYGONACEAE FAMILY FROM  
CARL STUDNICZKA'S HERBARIUM**

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**Abstract:** We analysed Polygonaceae family (Ord. Polygoneen) in Carl Studniczka's herbarium (herbarium code NHMS). Most of the analysed herbal material (90 herbarium sheets, with 165 samples of herbal plants) in this part of the C. Studniczka's herbarium were collected in Europe (84 herbarium sheets). According to the labels, the majority of herborized material was collected in the area of Austria (16 herbarium sheets). Most herbarium sheets (12) belong to Flora Böhmens collection (including Flora von Böhmen and Flora von Olmütz collections). Most herbarium sheets were collected by Studniczka himself (48). The oldest herbarium sheets dates from 1868, where as the newest one date from 1903. The exact year of collection is missing from 4 herbarium labels.

**Key words:** Studniczka's herbarium, Natural History Museum in Split, historical plant collection

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**Introduction**

Since 2005, we have been working on Carl Studniczka's herbarium which can be found in the Natural History Museum in Split. As a botanist amateur, Carl Studniczka collected plants while he was traveling (1869-1904) and working as an officer (data are known from herbarium labels: wide surrounding area of Vienna and Wiener Neustadt in Austria; of Split, Hvar and Dubrovnik in Croatia; of Celje, Koper and Izola in Slovenia; of Kotor and Herceg Novi in Montenegro; of Olomouc and Leitmeritz in the Czech Republic; of Przemysl in Poland and at last the wide surrounding area of Trieste in Italy). The analysis has shown that this herbarium contains samples of the plants which were collected and sent to Studniczka by many botanists or collectors of that time.

**Material and methods**

In this paper we analysed the herbarium sheets from Polygonaceae family. From the labels of the herbarium sheets first, we copied the Latin name of the genus and the species; then the date, month and year of collection; followed by the collector (**A**-Ayasse, **B**-Baenitz, **Ba**-Barth, **Be**-Becker, **BA**-Berlin Aug., **Br**-Brandmayer, **E**-Eggert, **En**-Engelmann, **F**-Freyn, **G**-Gandoger, **Gr**-Graf, **H**-Halácsy, **He**-Heldreich, **K**-Körnicke, **Kr**-Kristof, **R**-Ressmann, **Ri**-Richter, **S**-Studniczka, **Sc**-Scharlok, **St**-Strobl, **T**-Tauscher, **Ti**-Timberg, **W**-Wahlstedt) and the affiliation to the particular herbarium collection (F- E Flora Austriae inf., Fa-Flora aetnensis, FA-Flora Austriaca, FB-Flora

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Böhmen, FC-Flora Carinthiaca, FD-Flora Dalmatiens, FG-Flora Gallica exsiccata, FH-E Flora Hungarica, Fh-Flora hungarica, FI-Flora Istrien, FN-Flora von Nieder-Oesterreich, FO-Flora von Olmütz, FP-Flora von oesterr. Polen, FR-Flora rhenana, FS-Flora Süddalmatiens, Ft-Flora transsilvatica, FT-Flora von Tirol, FvB-Flora von Böhmen, FvT-Flora von Triest, FvW-Flora von Wr Neustadt, FW-Flora von Wien, H-Herb. Dr de Kühlewein, HA-Eggert, Herbarium Americanum, HE-C. Baenitz, Herbarium Europaeum, HW-Herbarium Willkomm, P-Planta America borealis, S-Société helvétique). According to The Plant list and USDA plants Database we listed the name of the species in brackets; from the label we copied the numeric sign, name of the place where the plant had been found with altitude data if available and listed the number of herbarium samples in brackets (for example, 2 h.s.).

### Results and discussion

#### List of species

(Ord. 97. Polygoneen)

1. *Atraphaxis spinosa* L. **Be** HW (*A. spinosa* L.) Rossia australis: pr. Sarepta (2 h.s.)
2. *Oxyria reniformis* Hook. = *O. digyna* Campol. 8.1874. **A** (*O. digyna* /L./ Hill) Rocailles humides an mt St. Bernard (Valais) (6 h.s.)
3. *O. digyna* Campd. 7.1876. **R** FC (*O. digyna* /L./ Hill) Wolliger Albl (3 h.s.)
4. *Polygonum acre* H.B.K. 10.8.1875. **E** HA (*Persicaria punctata* /Elliott/ Small) De Hodiament Av. (2 h.s.)
5. *P. albescens* Gdgr! 4.10.1873. **G** FG (*P. mitis* /Schrank/ Holub) No 241 Hab. In limosis prope Arnas (2 h.s.)
6. *P. amphibium* L. 7.1882. **S** FB (*P. amphibium* /L./ Delarbre) überschwemte Plätze nächst der Elbe bei Leitmeritz (1 h.s.)
7. *P. amphibium* L.  $\gamma$  *terrestre* 9.1885. **S** FP (*P. amphibium* /L./ Delarbre) Holzschläge, Gräben von Krasýčín b. Przemysl (1 h.s.)
8. *P. arenarium* WK 8.1874. **Ri** Fh (*Polygonum arenarium* Waldst. & Kit.) Pest sand (1 h.s.)
9. *P. arenarium* W & K. 2.10.1875. **T** FH (*P. arenarium* Waldst. & Kit.) Insula Csepel - pascuis arenosis prope pagum Csép (3 h.s.)
10. *P. arenastrum* Bor. 8.9.1876. **G** FG (*P. arenastrum* Boreau) No 60 Hab. In arenosis prope Denicé, Rhône (1 h.s.)
11. *P. aviculare* L. 12.7.1881. **S** FB (*P. aviculare* L.) Felder am Radobil bei Leitmeritz (3 h.s.)
12. *P. aviculare* L. 8.1885. **S** FP (*P. aviculare* L.) an Wegen, uncult. Orten im Przemysl (1 h.s.)
13. *P. aviculare* L. 1903. **S** FvT (*P. aviculare* L.) an Meeresufer bei Cedas (Miramarstrasse) (1 h.s.)
14. *P. bellardi* All. 19.6.1874. **St** Fa (*P. bellardi* All.) In locis herbosis planitici Catanensis (2 h.s.)
15. *P. bellardi* All. 5.6.1876. **Ba** Ft (*P. bellardi* All.) In agris: Mehbürg (3 h.s.)
16. *P. biforme* Wabg. 18.8.1874. **G** HE (*Persicaria maculosa* Gray) No 2422 Gallia austr. Arnas (Rhône) (1 h.s.)
17. *P. bistorta* L. 6.1873. **Br** FA (*P. bistorta* /L./ Samp.) Schwarzaun im Gebirge feuchte Wiesen (1 h.s.)

18. *P. bistorta* L. 5.1891. **S** FO (*P. bistorta* /L./ Samp.) Moorwiesen bei Kloster-Hradisch (3 h.s.)
19. *P. camptostachys* Gdgr! 2.9.1875. **G** FG (*P. vivipara* /L./ Ronse Decr.) No 412 Hab. In fossis et udis circa pagum Arnas (1 h.s.)
20. *P. convolvulus* L. 8.1885. **S** FP (*Fallopia convolvulus* /L./ Á.Löve) Brachaecker, Stoppelfelder um Przemysl (1 h.s.)
21. *P. convolvulus* L. 1.7.1897. **S** FvW (*F. convolvulus* /L./ Á.Löve) Schattergrüben b. Wr N. (1 h.s.)
22. *P. dubia* × *persicaria* G.G. 12.9.1872. **G** FG (*Persicaria mitis* /Schränk/ Holub) No 366 Hab. In humidis ad Arnas (2 h.s.)
23. *P. dumetorum* L. 10.1872. **S** FD (*Fallopia dumetorum* /L./ Holub) aüf zu hlbinsel Punta d'Oštro (1 h.s.)
24. *P. dumetorum* L. 10.9.1901. **S** FvT (*F. dumetorum* /L./ Holub) üm Barcola (2 h.s.)
25. *P. fagopyrum* L. 7.1876. **H** F (*Fagopyrum esculentum* Moench) colitur pro usu oeconomico Reichenau (4 h.s.)
26. *P. fagopyrum* L. 3.6.1885. **S** FP (*F. esculentum* Moench) cult. u. verwilders um Przemysl (3 h.s.)
27. *P. hydropiper* L. 8.1882. **S** FB (*Persicaria hydropiper* /L./ Delarbre) Gräben um Teresienstadt /:Festung:/ (2 h.s.)
28. *P. hydropiper* L. 8.1895. **S** FvW (*P. hydropiper* /L./ Delarbre) auf der Malleiten (3 h.s.)
29. *P. hydropiper* L. 8.1902. **S** FvT (*P. hydropiper* /L./ Delarbre) In Gräben um Barcola (2 h.s.)
30. *P. incarnatum* Ell. 16.8.1875. **E** HA (*P. lapathifolia* /L./ Delarbre) Feld hinter d. Forest Park (1 h.s.)
31. *P. lapathifolium* L. 29.8.1902. **S** FvT (*P. lapathifolia* /L./ Delarbre) In Gräben an der Miramarstrasse bei Barcola (1 h.s.)
32. *P. maritimum* Loser 19.5.1877. **S** FD (*Polygonum maritimum* L.) Sandbucht bei Traste gegen Cartol (3 h.s.)
33. *P. microspermum* Bor. 1.9.1875. **G** FG (*P. aviculare* L. subsp. *depressum* /Meisn./ Arcang.) No 870 Arnas (Rhône) (1 h.s.)
34. *P. microspermum* Desv. 2.9.1875. **G** FG (*P. aviculare* L. subsp. *depressum* /Meisn./ Arcang.) No 870 Hab. In campis et incultis ad Arnas (1 h.s.)
35. *P. minus* Huds 9.1885. **S** FP (*Persicaria minor* /Huds./ Opiz) ausgetrocknete Waldsümpfe von Krasýčín b. Przemysl (1 h.s.)
36. *P. pauciflorum* Gdgr! 18.9.1875. **G** FG (*P. mitis* /Schränk/ Holub) No 287 Hab. In limosis circa Arnas (1 h.s.)
37. *P. persicaria* L. 9.1885. **S** FP (*P. maculosa* Gray) Holzschläge von Krasýčín bei Przemysl (1 h.s.)
38. *P. persicaria* L. 5.1893. **S** FN (*P. maculosa* Gray) Sümpf. b. Wr Neustadt (2 h.s.)
39. *P. raji* Bab. 7.1877. **W** (*Polygonum oxyspermum* C.A.Mey. & Bunge subsp. *raii* /Bab./ D.A.Webb & Chater) In littore ad Helsingborg (4 h.s.)
40. *P. reichenbachii* Gdgr! 7.9.1876. **G** FG (*Persicaria lapathifolia* /L./ Delarbre) No 413 Hab. In paludosis vulgatum ad Arnas (2 h.s.)
41. *P. virginianum* L. **En** P (*P. virginiana* /L./ Gaertn.) ad fl. Mississippi inferiorem (1 h.s.)

42. *P. virginianum* L. **En** (*P. virginiana* /L./ Gaertn.) Louisiana (1 h.s.)
43. *P. viviparum* L. 7.1872. **Br** FvT (*P. vivipara* /L./ Ronse Decr.) Um Landro (3 h.s.)
44. *P. viviparum* L. 8.8.1899. **S** FvW (*P. vivipara* /L./ Ronse Decr.) am Kaiserstein des Schneberges (8 h.s.)
45. *Rumex acetosa* L. 4.6.1881. **S** FB (*R. acetosa* L.) Doxaner Au bei Theresienstadt (2 h.s.)
46. *R. acetosa* L. 30.5.1894. **S** FvW (*R. acetosa* L.) auf der Malleiten (1 h.s.)
47. *R. acetosella* var. *angustifolius* 18.7.1881. **S** FB (*R. acetosella* L.) Travčicer Wald bei Theresienstadt (2 h.s.)
48. *R. acetosella* L.  $\gamma$  *multifidus* 27.7.1881. **S** FB (*R. acetosella* L.) Sandwälder um Theresienstadt (2 h.s.)
49. *R. acetosella* L. *vulgaris* 5.6.1877. **S** FD (*R. acetosella* L.) magere Hutweiden am Monte Vermacz b. Cattaro (2 h.s.)
50. *R. acetosella* L. v. *vulgaris* 11.6.1885. **S** FP (*R. acetosella* L.) sandige Waldhügel bei Kruhel n. Przemysl (3 h.s.)
51. *R. alpinus* L. 22.7.1869. **Kr** (*R. alpinus* L.) Petzenalpe in Unterkärnten in der wüchsen Umgebung der Alpenhütten (1 h.s.)
52. *R. aquaticus* L. 18.5.1878. **F** (*R. aquaticus* L.) 72. Böhmen. Opočno. Ufer gemein (1 h.s.)
53. *R. arifolius* All. 22.7.1880. **F** (*R. alpestris* Jacq.) Böhmen. Mensegebirge Mischwälder du hohen Mense 1000 m (2 h.s.)
54. *R. ariifolius* All. 13.7.1897. **S** FvW (*R. alpestris* Jacq.) am Waxriegl d. Schneeberges (2 h.s.)
55. *R. britannica* L. 29.5.1875. **E** HA (*R. britannica* L.) Am Mississippi (2 h.s.)
56. *R. bucephalophorus* Lin. 29.3.1875. **He** HE (*R. bucephalophorus* L.) Flora Attica: frequens in collibus saxosis, campis et in locis aridis secus vias. Versus Phalerum (8 h.s.)
57. *R. conglomeratus* Murr. 6.9.1870. **S** FW (*R. conglomeratus* Murray) an der Piesting (1 h.s.)
58. *R. conglomeratus* Murr. 13.6.1900. **S** FvT (*R. conglomeratus* Murray) Gräben bei Gretta u. Barcola (1 h.s.)
59. *R. conspersus* Hn. 11.7.1875. **BA** HE (*Rumex*  $\times$  *conspersus* Hartm.) No 2432 Stockholm, Hornstullsgatan 15 a (1 h.s.)
60. *R. conspersus* H. 7.1874. **Gr** (*Rumex*  $\times$  *conspersus* Hartm.) Sueccia Jönköping (1 h.s.)
61. *R. crispus* L. 3.7.1874. **S** FD (*R. crispus* L.) aus getrockneten Stellen bei Paludi nächst Spalato (1 h.s.)
62. *R. crispus* L. 6.1882. **S** FB (*R. crispus* L.) Mlikojed am Elbeufer bei Leitmeritz (1 h.s.)
63. *R. crispus* L. 7.1885. **S** FP (*R. crispus* L.) Wiesen um Przemysl (1 h.s.)
64. *R. crispus* L. 21.6.1902. **S** FvT (*R. crispus* L.) Gräben bei Miramare (2 h.s.)
65. *R. hydrolapathum* Huds. 1871. **S** FW (*R. hydrolapathum* Huds.) Sumpfgräben um Wien (1 h.s.)
66. *R. integer* Gdgr! 27.5.1877. **G** FG (*R. sanguineus* L.) No 1102 Hab. Villefranche, Rhône (1 h.s.)
67. *R. marschallianus* Reichb. **Be** H (*R. marschallianus* Rchb.) Sarepta (1 h.s.)

68. *R. maximus* Schrb. 17.8.1875. **B HE** (*R. × heterophyllus* Schultz) Königsberg i Pr.: Lieper Bruch (1 h.s.)
69. *R. maximus* Schreb. 16.7.1900. **S FvT** (*R. hydrolapathum* Huds.) Barcola (1 h.s.)
70. *R. obtusifolius* L. var. *friessi* G. et G. 20.6.1868. **K FR** (*R. obtusifolius* L.) Bonn: Am Poppelsdorfer Weiher (1 h.s.)
71. *R. obtusifolius* L. var. *silvester* Wallr. 12.7.1868. **K FR** (*R. obtusifolius* L.) Bonn: in einer Vertiefung am Bahnhofe von Brühl (2 h.s.)
72. *R. obtusiflorus* L.  $\gamma$  *silvestris* Wallr. 5.7.1897. **S FvW** (*R. obtusifolius* L.) an der Leitha bei Neudörfel (1 h.s.)
73. *R. obtusiflorus* Fries 14.7.1902. **S FvT** (*R. obtusifolius* L.) Zwischen Grignano & Miramare an der Küste (1 h.s.)
74. *R. palustris* Schmidt. 17.7.1881. **S FB** (*R. palustris* Sm.) Egerufer bei Theresienstadt (1 h.s.)
75. *R. palustris* Smith. 3.8.1881. **S Fv** (*R. palustris* Sm.) überschwemte Plätze an der Eger bei Theresienstadt (1 h.s.)
76. *R. patientia* L. 17.6.1871. **S FW** (*R. patientia* L.) Sümpfe ain das Neugebäude (1 h.s.)
77. *R. patientia* L. 10.8.1881. **S FB** (*R. patientia* L.) Gräben um Teresienstadt (1 h.s.)
78. *R. pulcher* L. 26.6.1874. **S FS** (*R. pulcher* L.) aüs in trockenten Stellen, Rainen & Wegen bei Spalato (1 h.s.)
79. *R. pulcher* L. 6.1903. **S FvT** (*R. pulcher* L.) in Gräben üm Barcola (1 h.s.)
80. *R. sanguineus* L. 3.5.1878. **F** (*R. sanguineus* L.) 29. 250. Bohemia. Opočno. In pratis frequens 266 m (1 h.s.)
81. *R. sanguineus* L. 14.7.1885. **S FP** (*R. sanguineus* L.) Wiesen bei Bagonczicze n. Przemyśl (1 h.s.)
82. *R. scutatus* L. 2.8.1983. **S FN** (*R. scutatus* L.) Rüine Starhrmberg bei Pisting (3 h.s.)
83. *R. scutatus* L. 15.8.1893. **S FvW** (*R. scutatus* L.) in der Halsafriese ober Reichenau (3 h.s.)
84. *R. steinii* Becker 26.6.1882. **S FvB** (*R. × steinii* Becker) Sümpfe bei Mlikojed nächst Leitmeritz (2 h.s.)
85. *R. stenophyllus* Steph. = *R. crispus*  $\beta$  *odotocarpus* Sandor 9.1878. **Ri S** (*R. stenophyllus* Ledeb.) Budapest, Hungaria. In pratis salsis ad foritem Hunyadi Janos (1 h.s.)
86. *R. thyrsoides* Desf. 7.1879. **Ti** (*R. thyrsoides* Desf.) M. Kinnekulle (2 h.s.)
87. *R. tuberosus* L. 4.1874. **S FD** (*R. tuberosus* L.) auf Triften der Marchesina gredda & des Forts Clissa (3 h.s.)
88. *R. ucranicus* Besser. 1.9.1879. **Sc** (*R. ucranicus* Fisch.) Graudenz. Im Ueberschwemmungs-gebiete der Weichsel, besonders im Schlick (3 h.s.)
89. *R. verticillata* L. 20.6.1875. **E HA** (*R. verticillatus* L.) Seen in Ills. (2 h.s.)
90. *R. vinealis* Timb. 23.7.1875. **G FG** (*R. acetosa* L. subsp. *vinealis* /Timb.-Lagr. & Jeanb./ O.Bolòs & Vigo) No 816 Hab. In vinetis ad Denicé (Rhône) (1 h.s.)

Total number of the herbarium scheets in analysed family is 90 (with 165 samples of herbal plants). The majority of the plants was collected in Europe (84 herbarium sheets), and 6 sheets originate from North America.

Most of the herbarium samples were collected in the area of Austria (16 herbarium sheets) and: Czech Republic (15), France (11), Italy (11), Poland (10), USA

(6), Croatia (4), Sweden (4), Hungary (3), Russia (3), Germany (2), Montenegro (2). One herbarium sheet was collected in: Greece, Romania and Switzerland. According to the affiliation to a particular herbarium collection in analysed familys or their parts the most represented is Flora Böhmens (including Flora von Böhmen and Flora von Olmütz collections) with 12 herbarium sheets. This is followed by other collections, such as: Flora Gallica exsiccata (10), Flora von oesterr. Polen (9), Flora von Triest (9), Flora Dalmatiens (6 including Flora Süddalmatiens collection), Eggert, Herbarium Americanum (4), C.Baenitz Herbarium Europaeum (4), Flora von Wien (3) and others. There are 10 herbarium sheets that are unmarked and therefore we do not know which herbarium collection they belong to. In the part of the herbarium which has already been analysed (compare with: Mitić et al. 2008, 2010-2011, 2011, 2012, 2013, Vladović et al. 2007, 2009, 2010, 2012, 2013a, 2013b, 2014a, 2014b, 2015, Vladović & Mitić 2016, 2017a, 2017b, Ževrnja et al. 2008, 2009a, 2009b, 2010a, 2010b, 2011, 2013a, 2013b, 2013c, 2014a, 2014b, 2015) two new collections is mentioned for the first time and there are: Herb. Dr de Kühlewein and Planta America borealis.

Most of the samples of herbarium plants were collected by Studniczka himself (48 herbarium sheets), while others were sent to him by: Gandoger (11), Eggert (4), Freyn (3), Halácsy (4), Becker (2), Brandmayer (2), Engelmann (2), Körnicke (2), Richter (2) and others. In the part of the herbarium which has already been analysed, there is one botanist or collector of the herbal material which is mentioned for the first time: Timberg.

The oldest herbarium sheet dates from 1868, where as the newest ones date from 1903. The vast majority of herbarium sheets (44), was collected during the period from 1870 to 1880. The exact year of collection is missing from 4 herbarium label.

According to Studniczka, within 90 herbarium sheets (order Polygoneen) there are 4 genera with 56 species, in terms of which 6 varieties were recorded.

In this paper, there is one herbarium sheet from Romania. According to labels, in the part of the Studniczka's herbarium which has already been analysed, 125 herbarium sheets were collected in Romania.

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