

U.S. Department of Agriculture, Agricultural Research Service

Systematic Mycology and Microbiology Laboratory - Nomenclature Fact Sheets

February 19, 2013

***Erysiphe polygoni* DC. 1821 (Ascomycetes, Erysiphales)**

≡ *Ischnochaeta polygoni* (DC.) Sawada 1959

= *Erysiphe communis* f. *fagopyri* Jacz. 1927

= *Erysiphe polygoni* f. *muehlenbeckiae* O. Savul. & Tud.-Ban. 1967

[*Erysiphe polygoni* var. *fagopyri* Y.S. Paul & V. Thakur 2006] Note: Nom. inval. via ICBN Art. 37.6.

[*Erysiphe polygoni* var. *kailashi* Y.S. Paul & V. Thakur 2006] Note: Nom. inval. via ICBN Art. 37.6.

[*Erysiphe polygoni* var. *rumicis* Y.S. Paul & V. Thakur 2006] Note: Nom. inval. via ICBN Art. 37.6.

Notes: On Chenopodiaceae, now referred to as *E. betae* (Junell, 1967). On Apiaceae now referred to as *E. heraclei* (Blumer, 1967). The name *Erysiphe communis* (Wallr.:Fr.) Schltdl. 1824 nom. rej. has previously been used for this powdery mildew as well as *Erysiphe pisi* var. *pisi* and other *Erysiphe* spp. *E. communis* was sanctioned by Fries, and would have priority, but the name has been rejected (Taxon 44:226, 1995; Taxon 48: 375, 1999).

Distribution: Cosmopolitan.

Substrate: Living leaves.

Disease Note: Powdery mildew.

Host: Polygonaceae.

Internal Note: Drew added some invalid names to Erica's treatment.

Supporting Literature:

Blumer, S. 1967. Echte Mehltaupilze (Erysiphaceae) Ein Bestimmungsbuch für die in Europa vorkommenden Arten. VEB Gustav Fischer Verlag, Jena, 436 pages.

Braun, U. 1987. A monograph of the Erysiphales (powdery mildews). Beih. Nova Hedwigia 89: 1-700.

Braun, U. 1995. The Powdery mildews (Erysiphales) of Europe. Gustav Fischer Verlag, 337 pages.

Braun, U., and Paul, Y.S. 2009. The Indian Erysiphaceae revisited. Nova Hedwigia 89: 371-395.

Junell, L. 1967. Erysiphaceae of Sweden. Symb. Bot. Upsal. 19: 1-117.

Parmelee, J.A. 1977. The fungi of Ontario. II. Erysiphaceae (mildews). Canad. J. Bot. 55: 1940-1983.

Saenz, G.S., and Taylor, J.W. 1999. Phylogeny of the Erysiphales (powdery mildews) inferred from internal transcribed spacer ribosomal DNA sequences. Canad. J. Bot. 77: 150-168.

Verified By: Drew On Dec 22, 2009

Salmon (1900) defined *Erysiphe polygoni* DC. broadly, to include a wide range of morphological characters, and to occur on a number of host families, including (among others) Apiaceae (=Umbelliferae), Chenopodiaceae, and Polygonaceae. Blumer (1967) restricted *E. polygoni* to include only taxa occurring on Chenopodiaceae and Polygonaceae, and placed those occurring on Apiaceae in *E. heraclei*, differentiated primarily on the basis of characteristics of cleistothecial

appendages (but see Parmelee 1977). Junell (1967) further limited the concept of *E. polygoni* to include only hosts in the Polygonaceae, with *E. betae* for those occurring on Chenopodiaceae (primarily *Beta vulgaris*). Braun (1987, 1995) followed these conventions in his monographs on the Erysiphales.

Saenz & Taylor (1999) have provided ITS rDNA sequences for several collections of *E. polygoni*. Several ITS sequences for *E. heraclei* are available in GenBank (unpublished). Based on a BLAST comparison, the ITS regions are 98% homologous. The two species appear to be closely related, and further analysis (more collections) would be needed to confirm their taxonomic status as separate species.

Geographic Distribution and Plant Hosts

Based on Braun 1995 (following Blumer 1976 and Junell 1976), *E. polygoni* is confined to plant hosts in the Polygonaceae. In the literature, however, *E. polygoni* is commonly used in the broad sense (i.e., following Salmon 1900), especially in reports from North America. Our fungus-host database includes more than 1000 observations after 1976 of *E. polygoni* on hosts other than Polygonaceae. Of these, twelve observations were made after 1976 of *E. polygoni* on members of the Apiaceae. In most cases, the original reference mentions that the authors are using *E. polygoni* in the sense of Salmon 1900. In other cases, the authors do not specify. There are no reports of other *Erysiphe* spp. on *Apium* spp. in the literature.

Additional Literature

Cook, R.T.A., Inman, A.J., and Billings, C. 1997. Identification and classification of powdery mildew anamorphs using light and scanning electron microscopy and host range data. **Mycol. Res.** 101(8):975-1002.

Coyier DL, Maloy OC, Zalewski JC, 1975. The ascigerous stage of *Erysiphe polygoni* on sugar beets in the United States. **Proceedings of the American Phytopathological Society**, 2:112.

Hirata K. (Amano), 1986. **Host range and geographical distribution of the powdery mildew fungi.** Japan Sci. Soc. Press, Tokyo, 741 pg.

Junell, L. 1967. A revision of *Erysiphe communis* [Wallr.] Fr. sensu Blumer. **Sv. Bot. Tidskr.** 61:209-230.

Kapoor, J.N. 1967. *Erysiphe heraclei*. **C.M.I. Descriptions of Pathogenic Fungi and Bacteria** 154.

Koike, S.T. 1997. First report of powdery mildew caused by *Erysiphe heraclei* on celery in North America. **Plant Dis.** 81:231.

Salmon, E.S. 1900. **A Monograph of the Erysiphaceae.** Memoirs of the Torrey Botanical Club IX, New York, 292 pp.

Sivanesan, A. 1976. *Erysiphe polygoni*. **C.M.I. Descriptions of Pathogenic Fungi and Bacteria** 509.

Report written by Erica Cline, 3/18/2005.