Accepted Manuscript

The species of *Coleosporium* (*Pucciniales*) on *Solidago* in North America

Alistair R. McTaggart, M. Catherine Aime

PII: S1878-6146(18)30070-9

DOI: 10.1016/j.funbio.2018.04.007

Reference: FUNBIO 922

To appear in: *Fungal Biology*

Received Date: 29 August 2017

Revised Date: 15 March 2018

Accepted Date: 10 April 2018

Please cite this article as: McTaggart, A.R., Aime, M.C., The species of *Coleosporium* (*Pucciniales*) on *Solidago* in North America, *Fungal Biology* (2018), doi: 10.1016/j.funbio.2018.04.007.

The species of *Coleosporium* (*Pucciniales*) on *Solidago* in North America

Alistair R. McTaggart[1*] and M. Catherine Aime[2]

[1]*Department of Microbiology and Plant Pathology, Tree Protection Co-operative Programme (TPCP), Forestry and Agricultural Biotechnology Institute (FABI), Private Bag X20, University of Pretoria, Pretoria, 0028, South Africa.*

[*]*Current address: Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Ecosciences Precinct, GPO Box 267, Brisbane, Queensland 4001, Australia.*

[2]*Department of Botany and Plant Pathology, Purdue University, 915 W. State Street, West Lafayette, IN 47907, USA.*

Author emails: alistair.mctaggart@gmail.com, maime@purdue.edu

Abstract

Species of *Coleosporium* (*Pucciniales*) are rust fungi that typically alternate between pines and angiosperms. The telial stage of *Coleosporium* is frequently encountered on species of *Solidago* (goldenrods) in North America, although the taxonomy for rust fungi on *Solidago* is unresolved. The comprehensive works of Joseph. C. Arthur and George B. Cummins considered these rust fungi to belong to a single species, *C. solidaginis* (fide Arthur) or *C. asterum* (fide Cummins). However, later inoculum studies demonstrated there were two distinct species of *Coleosporium* on *Solidago* that differed in their aecial hosts, although their telia and uredinia overlapped on some species of *Asteraceae*. In a previous taxonomic study of *Coleosporium*, specimens on *Solidago* that were determined as *C. asterum* in North America were not conspecific with the type, originally described from Japan. This prompted the present study to clarify the identity of those species of *Coleosporium* that infect *Solidago* and related hosts in North America. To this end, more than 40 collections of *Coleosporium* infecting *Asteraceae* from North America were included in a systematic study using regions of ribosomal DNA and morphology of teliospores and basidia. Our data indicated at least three species of *Coleosporium* occur on *Solidago* in North America. *Coleosporium solidaginis* is distinguished from other species of