

The rust fungi collection in herbarium G: from unknown to becoming a world reference

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Biological collections play an essential and central role in a plethora of studies dealing with fundamental biology, ecology, conservation, taxonomy, phylogeny, biochemistry, pharmacy, ethnobotany, etc., both in basic and applied fields. These subjects of research are traditionally preserved in museums and herbaria, representing part of the biological, historical, and cultural heritage. Despite its importance, the value of natural collections is often underestimated, especially in the era of molecular research and informatics. However, these collections are an almost never-ending source of unique data about biodiversity and the environment, provide important insights into our history, and form a foundation for education and taxonomic knowledge, all of which can now be extracted with different analytical techniques (NGS/museumomics, CT-scan tomography, isotope analyses, etc.).

The mycological section of herbarium G holds the second largest fungal collection in Switzerland, including specimens of all major groups of fungi from all parts of the world. As part of a SwissCollNet project (financed by the SCNAT), in collaboration with the herbarium Z+ZT, we aim at making publicly available and searchable an important part of the rust fungi specimens (Pucciniomycotina), none of which have been databased prior to this study. A detailed survey revealed over 4000 species names in more than 100 genera, of which an impressive 30 % have associated type material. All potential type specimens were extracted and several nomenclatural issues were solved. At the end of the project, the nomenclature will be updated, specimens properly classified, and types both databased and macro- and microscopically imaged. This will serve to pave the way for future research in systematics, biodiversity, and conservation, with important implications in other disciplines, such as molecular biology, morphology, etc.