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Conference Abstract

The CDM Applied: Unit-Derivation, from Field Observations to DNA Sequences

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Abstract

Specimens form the falsifiable evidence used in plant systematics. Derivatives of specimens (including the specimen as the organism in the field) such as tissue and DNA samples play an increasing role in research. The EDIT Platform for Cybertaxonomy is a specialist's tool that allows to document and sustainably store all data that are used in the taxonomic work process, from field data to DNA sequences. The types of data stored can be very heterogeneous consisting of specimens, images, text data, primary data files, taxon assignments, etc.

The EDIT Platform organizes the linking between such data by using a generic data model for representing the research process. Each step in the process is regarded as a derivation step and generates a derivative of the previous step. This could be a field unit having a specimen as its derivative or a specimen having a tissue sample as its derivative. Each derivation step also produces meta data storing who, when and how the derivation was done. The Platform's Common Data Model (CDM) and the applications build on the CDM library thus represent the first comprehensive implementation of the largely theoretical models developed in the late 1990ies (Berendsohn et al. 1999).

In a pilot project research data about the genus *Campanula* (Kilian et al. 2015, FUB, BGBM 2012) was gathered and used to create a hierarchy of derivatives reaching from field data to DNA sequences. Additionally, the open source library for multiple sequence alignments LibrAlign (Stöver and Müller 2015) was used to integrate an alignment editor into the EDIT platform that allows to generate consensus sequences as derivatives of DNA sequences.

The persistent storage of each link in the derivation process and the degree of detail on how the data and meta data are stored will speed up the research process, ease the reproducibility of research results and enhance sustainability of collections.

Keywords

EDIT Platform, Taxonomy, Specimen

Presenting author

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Hosting institution

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