

Linnaeus 2.0: First E-publication of new plant species

May 5 2010

Four new Neotropical plant species in the hyperdiverse genus *Solanum* (*Solanaceae*), which includes plants as diverse as the deadly nightshade as well as the more palatable tomato have been published in the open access online-only journal *PLoS ONE* by Dr. Sandra Knapp of the Natural History Museum, London. Although several thousand new plant species are described each year, this paper represents a botanical pioneer: it is the first to be published in an online-only journal whilst adhering to the strict botanical code that sets out how new species can be named.

The naming of new taxa in plants is governed by the International Code of Botanical Nomenclature (ICBN), which has traditionally been thought to not allow publication of new names in anything other than print on paper. This article provides a solution to this conundrum by separating the printing process from the publisher and enabling the author to print their own copies and distribute them to relevant museums and institutions on the day of publication. As such, it is the first to effectively publish new plant names in an online-only journal while complying with the rules and recommendations of the ICBN. Because [PLoS ONE](#) is also an open-access journal, the article and the associated guidelines are freely available for the community to download and use as the 'type-specimen' for such a publication.

Dr Knapp is a leading plant taxonomist, author of numerous books and a world authority on *Solanaceae*, the nightshade family which includes potatoes and tomatoes. She is well acquainted with the Codes of

Nomenclature, of which the ICBN is one (the others govern cultivated plant, animals and bacterial names).

"These codes are possibly the best and longest lasting example of voluntary adherence to standards in science; they have been in use since the early 19th Century, and although legalistic, are not legally binding", she notes.

Instead, they rely on the community of scientists adhering to the standards set out by generations of taxonomists. They exist to help maintain stability in naming by providing clear rules for publication.

"Without such codes governing naming, there would be chaos; numerous different names could exist for the same species and numerous different species would potentially be referred to by the same name. This would impact all branches of life sciences as the name of a species - be it a pathogen or a crop - represents a fundamental part of communicating knowledge about the natural world."

A key part of the current code for the ICBN is that names must be associated with a print copy on the same day the article is published. However, publishing is rapidly changing and many journals, such as those published by the Public Library of Science, are online only. As publishing changes, so the Codes themselves will change, but the rate of change in publishing is currently outstripping that of the Codes. By separating the printing process from the publisher, this paper is the first botanical example of how flexibility of both authors and publishers can result in change without subsequent instability in names.

The botanical code is amended every 6 years through the deliberations of a Nomenclature Section at International Botanical Congresses, the last was in Vienna in 2005, and the next in Melbourne in 2011. In 2005, new recommendations were introduced to set guidelines for future electronic

publishing. Dr Knapp will preside as President of the 2011 Nomenclature Section in Melbourne, and the issue of electronic publishing of new names will be part of the debates about changes to the Code that will help taxonomists keep pace with the rapidly changing nature of scholarly communication.

"The Code will evolve and adapt to the changing needs of scientists, and publishers have an important role to play to help ensure that the changes are implemented correctly" Dr Knapp confirms.

In this paper she describes new species of *Solanum*, one of only a dozen genera of flowering plants with more than 1000 species. This is part of a project providing an authoritative, global, in-depth treatment of all species of *Solanum* funded by the US National Science Foundation under the Planetary Biodiversity Inventory programme; this web taxonomy is freely available on-line at *Solanaceae* Source (www.solanaceaesource.org). The four new *Solanum* species are from the New World tropics and are all related to the European woody nightshade, *Solanum dulcamara*. They are named for local botanists in their countries of origin or for characteristics of the plants themselves; type specimens of each new species are housed in countries where they are native.

More information: Knapp S (2010) Four New Vining Species of *Solanum* (Dulcamaroid Clade) from Montane Habitats in Tropical America. PLoS ONE 5(5): e10502. [doi:10.1371/journal.pone.0010502](https://doi.org/10.1371/journal.pone.0010502)

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Citation: Linnaeus 2.0: First E-publication of new plant species (2010, May 5) retrieved 9 April 2024 from <https://phys.org/news/2010-05-linnaeus-e-publication-species.html>

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