



Article

Stable citations for herbarium specimens on the internet: an illustration from a taxonomic revision of *Duboscia* (Malvaceae)

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Abstract

A taxonomic revision of *Duboscia* (Malvaceae) with two species, *D. macrocarpa* and *D. viridiflora*, is presented and used to demonstrate a mechanism for linking from revisions to specimens held in herbaria using HTTP URIs. The implementation of this mechanism at the Royal Botanic Garden Edinburgh (E) is used as an example. Advantages of this approach include near universal support amongst web-connected devices. Hindrances to widespread adoption of such an approach are also discussed.

Introduction

Citation of sources is a requirement of good scientific writing. In paper-based publications, references to other works are designed to be read by a user who will visit a library to retrieve the target work. As journals move on-line, these references are increasingly hyperlinks of the kind used elsewhere on the World Wide Web. A reader simply clicks the link to gain access to the target work. Although there are many works still only in paper form, many publishers and complex copyright issues, it seems likely this way of navigating the literature will become ubiquitous.

Taxonomic publications also cite specimens. These references are designed for a human to find the associated specimen in a herbarium. They typically consist of collector name, collector number and Index Herbariorum code. Many herbaria are now digitising their holdings and making them available on-line. This digitisation process often includes high resolution images of the specimens. It seems reasonable that the reader of a taxonomic publication should expect to click on a reference to a specimen and see an image of that specimen immediately, just as they do with references to written works.

This paper contains linked references for specimens stored at the Royal Botanic Garden Edinburgh (E). By clicking on the specimen reference in a web browser or PDF viewer, the user will be taken to a web page containing more information and a zoomable, high-resolution image of the specimen. It is our intention that this paper serve as an example of how to link to our specimens, and—should it prove successful—a model for how other herbaria could provide specimen linking mechanisms. In this paper we concentrate on the linking method used at RBGE, and we do not attempt to link to the specimens cited from other collections.

Introduction to the revision

Duboscia (Bocquillon, 1866) is a small genus of trees in the family Malvaceae (formerly placed in Tiliaceae), found in forest from the Ivory Coast to the Democratic Republic of Congo. We follow the APG III (2009) circumscription of Malvaceae in this paper but note that this is not followed by all authors, for example Cheek (2007). *Duboscia* has been placed in the subfamily Grewioideae (Bayer & Kubitzki 2003). We are not aware of any DNA sequences for the genus and it was not included in molecular studies of the Malvaceae s.l. (Judd & Manchester 1997, Bayer et al. 1999 and Alverson et al. 1999).