



A new species of *Rochefortia* (Ehretiaceae, Boraginales) from the Lesser Antilles

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Abstract

Taxonomic diversity of Neotropical *Rochefortia* is not completely assessed at present. We report the existence of a new species: *Rochefortia barloventensis* sp. nov., distributed across multiple islands of the Lesser Antilles. We provide a morphological description, a molecular diagnosis and a botanical illustration. Specimens belonging to the new species were previously assigned to Caribbean *R. cuneata* or to South American *R. spinosa* because of morphological similarity. Molecular sequence data shows a clear delimitation of the new species from all other species of *Rochefortia* justifying the recognition of a novel taxon.

Keywords: Boraginaceae, DNA barcoding, Internal Transcribed Spacer, Leeward Islands, taxonomy

Introduction

Rochefortia Swartz (1788: 53) comprises nine species of woody plants (shrubs, small trees or rarely lianas) restricted to the Caribbean and adjacent American mainland. The combination of the dioecious sex distribution and the thorny habit is unique within Ehretiaceae (Boraginales) and argues for the monophyly of *Rochefortia*. Molecular phylogenetics confirm this monophyly and specify Neotropical *Lepidocordia* Ducke (1925: 170) as the sister group exhibiting dioecy as well (Gottschling *et al.* 2014a). Species delimitation is challenging within *Rochefortia* because of both a high degree of morphological variability and almost the lack of diagnostic characters. However, molecular data (primarily from the nuclear Internal Transcribed Spacer: ITS region) indicate a strong biogeographic signal with four major evolutionary lineages distributed (with little overlap) either on the American mainland or on the Lesser Antilles or on the eastern Greater Antilles or on the western Greater Antilles (Irimia *et al.* 2015).

Since the dawn of molecular systematics, the discovery of cryptic species has been increased, if reproductively isolated biological units show differences in, for example, DNA sequences but not in morphology (Bickford *et al.* 2007). *Rochefortia* appears also affected by the phenomenon, particularly when it is studied over the entire distribution range. However, biological species are ‘cryptic’ as long as further diagnostic traits are not uncovered by morphology, distribution and/or ecology. The basis for all such investigations is to communicate the distinctiveness of species (Kretschmann *et al.* 2014), which was also done for angiosperms such as *Brunfelsia plowmaniana* Filipowicz & M.Nee (2012: 48) (Solanaceae). The species was the first flowering plant being based on a ‘molecular diagnosis’ relying on DNA sequence data only. Several authors have underlined the importance of molecular diagnostics for DNA barcoding in order to determine species reliably (Santos & Faria 2011, Samyn & De Clerck 2012, González Gutiérrez *et al.* 2013).

In the course of examining specimens and preparing a taxonomic revision of *Rochefortia*, collections representing a previously not recognised taxon from the Lesser Antilles were discovered. Corresponding specimens were previously identified either as (Greater Antillean) *R. cuneata* Swartz (1788: 53) or (South American) *R. spinosa* (Jacquin 1760: 14) Urban (1908: 479). In his morphological revision, Lefor (1968) included them in the latter, very broadly circumscribed species. However, molecular data indicate the distinctiveness of the species that is closely related to neither *R. cuneata* nor *R. spinosa* but to *R. acanthophora* (DC. 1845: 510) Grisebach (1864: 482) from the eastern Greater Antilles (Irimia *et al.* 2015). As a consequence, we here describe a new species of *Rochefortia*.