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RESEARCH ARTICLE

Critical comments on the article by Wang et al. "Lectotypification of the name *Brachyscome neocaledonica* = *Pytinicarpa neocaledonica* (*Asteraceae*: *Astereae*)" published in the Ukrainian Botanical Journal (2022, 79(2): 77–83)

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Abstract. In this note, we highlight a series of possible misinterpretations (collectors, localities, previous writings) and other problems in the nomenclatural study by Wang et al. (2022) on lectotypification of the name *Brachyscome neocaledonica* ≡ *Pytinicarpa neocaledonica* (*Asteraceae*: *Astereae*). In our opinion, this lectotype designation led to debatable conclusions that added confusion to taxonomy of *Pytinicarpa* G.L.Nesom, an already taxonomically complicated genus. However, we accept that type designation and explain its nomenclatural and taxonomic consequences.

Keywords: *Brachyscome*, New Caledonia, nomenclature, *Pytinicarpa*, taxonomy, typification

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Introduction

Wang et al. (2022) recently published a nomenclatural note, in which they designated a lectotype for the name *Brachyscome neocaledonica* Guillaumin, the basionym of the currently accepted name *Pytinicarpa neocaledonica* (Guillaumin) G.L.Nesom (*Asteraceae*: *Astereae*). In our opinion, this study suffered from some problems and inaccuracies. Based on this situation, we asked for the publication of the present note.

Dr. Jian Wang, with whom a part of our team previously published a revision of the related genus *Lagenophora* in New Caledonia (Lannuzel et al., 2021), was originally part of another study (Lannuzel et al., under review) on the revision of *Pytinicarpa* G.L.Nesom in New Caledonia. This study was originally handled by the authors of the present note, in collaboration with J. Wang, until he decided to withdraw from the list of authors arguing about his lack of time. At this stage, on 2 December 2021, the article was almost ready. We thus thanked him for his involvement and completed our work, which was submitted to PhytoKeys on 7 December 2021. The subject editor assigned by PhytoKeys was Peter J. de Lange who informed us on 4 April 2022 that our paper was accepted with major revision. Among the three reviewers, one accepted it without any revision, one with minor revision, and the third one (J. Wang) rejected

it. On 18 April 2022, a Google Scholar alert informed us about a new paper on the same subject in the Ukrainian Botanical Journal, with our former colleague and our editor, as co-authors. We contacted editorial boards of both PhytoKeys and the Ukrainian Botanical Journal, and they both confirmed that neither Jian Wang nor Peter de Lange declared any conflict of interest during the reviewing process, nor the submission (on 21 March 2022) of their own competing paper.

In addition to the circumstances reported above, we noticed several scientific inaccuracies (in our opinion) related to the always difficult interpretation of historical New Caledonian herbarium material, and we discuss them below.

On misinterpretations of the original herbarium material from New Caledonia

The 19th century herbarium material from New Caledonia is sometimes difficult to interpret, and as such, any interpretation require a thorough knowledge of the history of botanical research, biographies of botanists, their way of working, and the archipelago's geography and biology. The early collectors, particularly Eugène Vieillard, Emile François Deplanche and Jean Armand Isidore Pancher, used a numbering system based on taxa and thus usually assigned the same collection number to all specimens they believed to represent a single species, a numbering system that was more or less shared between them and several other botanists, thus resulting in mixed collections with regards to collection (or taxon) numbers (Guillaumin, 1942; Morat, 2010). Lectotypification of names of plants from New Caledonia must therefore be done very carefully, because a single collection or taxon number not necessarily corresponds to a single gathering.

Wang et al. (2022) wrote "at the time when he named the species, Guillaumin listed three collections citing three collectors and their associated numbers, namely: two specimens from Neue collected by Pancher in 1870 and labelled with the same collecting number '94' (so treated as one gathering)". However, in the protologue, Guillaumin cited "Néhoué" as a locality name, which is the modern orthography of "Néué" or "Neue", with one specimen from Pancher, and another from Deplanche. Unlike Wang et al. (2022), Guillaumin was aware of Pancher's special numbering system, so he attributed the specimen P00537795 to *Pancher 94* instead of *Musée Néocalédonien* (*Mus. Néocal.*) *94* or *Vieillard 2823* (V. n°2823), as written on the specimen's label. Contrary to what Wang et al. (2022) stated, the specimen was not collected by Pancher in 1870 but given by Pancher in 1870 ("Donné par M. Pancher, 1870"). The specimen was most probably collected between 1861 and 1867 like other collections from this period at P attributed to this set, and the original collector was most probably Deplanche, not Pancher. Indeed, those who know about the history of botany in New Caledonia, also know that Deplanche and Pancher were not there but in France in 1870 (Morat, 2010). Deplanche is also known to have participated in the hydrography studies in the northern part of New Caledonia, aboard the vessel *La Fine*, in 1865 (Garnier, 1868; Grandidier, 1882), thus most probably visiting both Néhoué and Gatope localities. Further, it is unclear what Wang et al. (2022) mean by two specimens of *Pancher 94* in 1870 from Neue because there is only one specimen (P00537795, also in accordance with their Table 1) with three plants on the sheet. In addition, it is their interpretation to consider a single collecting number from Pancher, Deplanche or Vieillard and to treat them as one gathering. The odd numbering of these three collectors has been clearly documented in literature over several decades, so lectotypification of names involving such specimens should be done very carefully with a good knowledge of the taxonomy, nomenclature, and botanical history of New Caledonian flora and its collectors.

A "careful study" based on the images?

Wang et al. (2022) wrote "after careful study, we discovered that two of these three original collections (gatherings, see Art. 8.2 [and Art. 8.2 footnote] of the ICN: Turland et al., 2018) are mixed, i.e., they include both *Pytinicarpa neocaledonica* and *P. sarasinii* (Table 1)". However, they based their study only on scanned or photographed images available on the internet. It is a pity that they did not investigate the morphological characters related to the structure of the flowers, which we did (see Lannuzel et al., under review). They do not inform on which criteria they based their discovery because there is no Material and Methods section in their paper to explain this, and there is no clear morphological criterion listed. In addition, throughout the article, it is unclear what is meant by "!" at cited specimens. It would have been fair to write "image!" or, if it was the case, to recognize that the "careful study" was done by one of us (MP) directly from the Paris specimens.

A misinterpretation of Nesom's writings

Wang et al. (2022) also divert Nesom's (1994) writings, when they state "Nesom (1994) studied two sheets (AA, GH) comprising the five plants mentioned in Guillaumin's protologue (Fig. 1)". Instead, Nesom (1994) wrote that he "studied two sheets of *Vieillard 2823* (AA!, GH!), which include a total of 5 plants". Obviously, Guillaumin (1937) never mentioned five plants in his protologue. In addition, regarding both herbaria, only one (A00097920) bears Guillaumin's own identification label, while another (GH-00097921) was most probably not seen by Guillaumin, as it bears no evidence of his study.

Written and submitted in a hurry

We may assume that the problems reported above probably resulted because of the rushed writing of the paper so it can be published before ours. Some other minor problems may also be due to that, such as the title, in which it would have been better to use between the names *Brachyscome neocaledonica* and *Pytinicarpa neocaledonica* the triple bar sign ([≡], "identical to", which is usually used for homotypic synonyms) instead of the standard equality sign ([=], normally used for heterotypic synonyms. However, the "identical to" sign (≡) is used in the lectotypification section. And the last point: *B. neocaledonica* was described by André Guillaumin (1885−1974), whose standard abbreviation is "Guillaumin". In most parts of their paper, Wang et al. (2022) used the abbreviation "Guill.", which is the one for Jean Baptiste Antoine Guillemin (IPNI, 2022).

Confusing conclusions

We also think that these problems led to conclusions that, instead of clarifying nomenclature, added more confusion. We believe that in our original research we made a thorough analysis based on many dissections of the original material undertaken by one of us (MP) at the P herbarium, and reached a different conclusion. To understand that point, one must account for the very high level of narrow endemism in New Caledonia, with species often restricted to one locality or with a narrow range (Wulff et al., 2013; Caesar et al., 2017; Lannuzel et al., 2022). According to Wang et al. (2022), *P. neocaledonica* is thus present in both Gatope and Néhoué, two localities quite remote one from another at the local scale. They also consider *P. sarasinii* to be present in Néhoué as well (see their Table 1), while the type of the latter species is from Koniambo mountain (Däniker, 1933), a place next to Gatope. This mixed distribution for two similar species would be considered at least odd by any local field botanist. Although these odd distribution patterns are of course no evidence, they must lead to further analysis (more than online scan examination) and interpretation. To do that, we dissected both the syntypes at P from Neue, and the only modern gathering in Néhoué (*MacKee 18336*), H.S. MacKee being considered as a reliable collector with respect to collection locations. The results are presented on Fig. 1 and show one conclusive detail, which is the absence of hairs on the ray floret corolla tube, while every single specimen gathered in Gatope, or the Mount Koniambo, show hairy corolla tubes on ray florets (Lannuzel et al., under review). This is also congruent with Guillaumin's drawings on *Mus. Néocal. [Pancher] 94* (P00537795 – Fig. 2) showing a glabrous corolla. Furthermore, these drawings are the only ones among all syntypes of *Brachyscome neocaledonica*, and it is known that it was Guillaumin's habit to dissect and draw his work when describing a species. And, as far as it is known, Guillaumin used to put his drawings on the herbarium sheet where he took a sample. On that point, Rec. 9A of the *Shenzhen Code* (Turland et al., 2018) gives clear preference to the sheet bearing the drawings. Consequently, our conclusions were that the best lectotype was *Mus. Néocal. [Pancher] 94* (P00537795). We agree that the syntypes are mixed collections, with some sheets bearing only plants from Néhoué or Gatope, while some others were mixed, as was quite usual with Vieillard's gatherings, especially when they were mounted at the CN herbarium. On the other hand, the lectotype designed by Wang et al. (2022) has a hairy ray floret corolla tube (Fig. 3), which, along with other criteria, conclusively identifies it as a specimen belonging to *P. sarasinii*.

Our conclusions support Däniker's (1933) one when he stated that *Brachyscome sarasinii* "is close to *Brachyscome neocaledonica*, but differs from it" by several criteria he listed and that we confirm in our paper (Lannuzel et al., under review). Däniker also stated that an original gathering of this species by Sarasin, which was not retrieved, was identified by Guillaumin himself as "*Brachyscome* spec. nov.", certainly because Guillaumin based his knowledge of *Brachyscome neocaledonica* on P00537795 instead of P00537796.

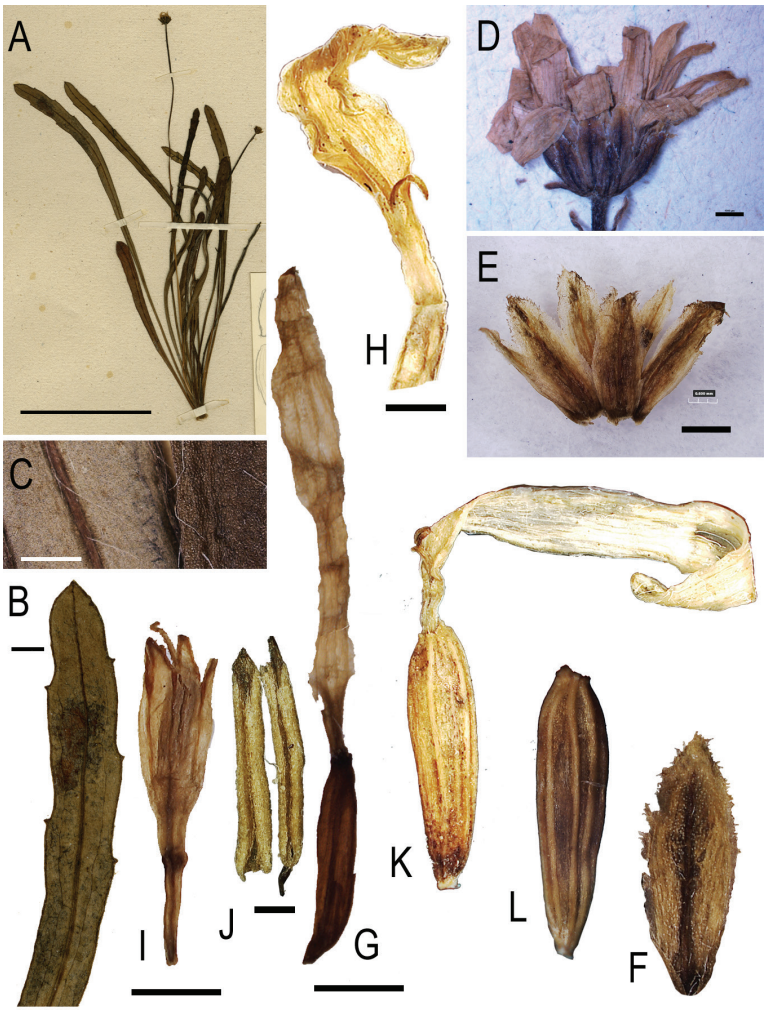

Fig. 1. Observations of some characters of *Pytinicarpa* collected in the Néhoué locality. A: habit; B: leaf apex detail; C: leaf abaxial (left) and adaxial (right) surfaces with trichomes; D: capitula; E–F: involucral phyllaries; G–H: ray floret; I: disc floret with reduced ovary; J: stamens; K: young cypsela with ligula; L: cypsela. A–B, D–F, I–L from *Mus. Néocal. [Pancher] 94 [Vieillard 2823],* G–H from *MacKee 18336* (P03276809, details from specimen on the right) (*images: M. Pignal*). Scale bars: 50 mm (A), 3 mm (B), 1 mm (C–L)

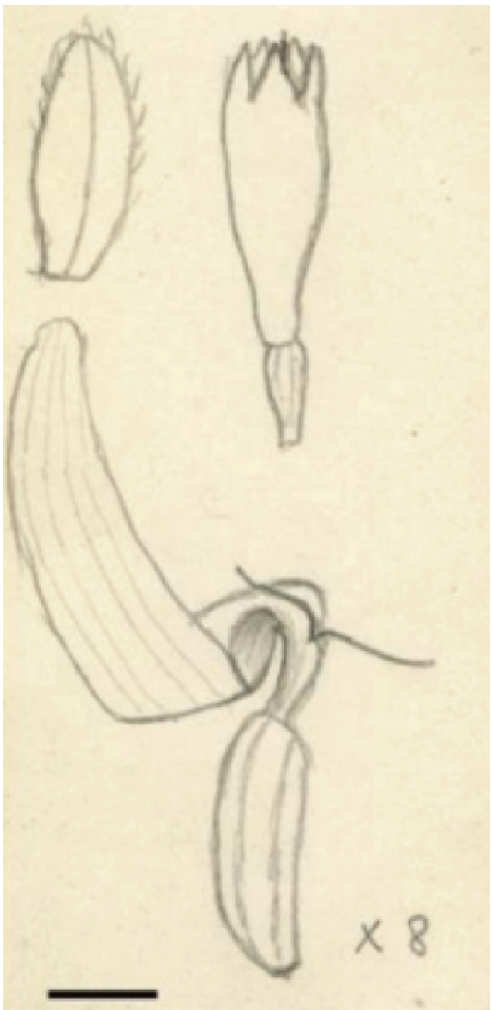

Fig. 2. Guillaumin's drawing on P00537795, *Mus. Néocal. [Pancher] 94 [Vieillard 2823]*

Conclusion

As a conclusion, we deeply regret that J. Wang preferred to quit our team and write a rushed lectotypification of that plant name. Instead of adding clarity to that complex genus, we explain here how much the situation is even more confusing now than before. However, regarding the code of nomenclature (Turland et al., 2018), and the confusion with the mixed syntypes, we believe that it is wiser to accept the lectotypification made by Wang et al. (2022) and move forward to clarify taxonomic situation within the genus. In a paper that is being examined (Lannuzel et al., under review), this new situation forces us to put *Brachyscome neocaledonica* under synonymy of *Pytinicarpa sarasinii*, and create a new name for the species occurring in Néhoué, instead of confirming it as belonging to *Pytinicarpa neocaledonica*.

Ethics Declaration

The authors declare no conflict of interest.

Fig. 3. *Vieillard 2823* – P00537796, with detailed images of the ray florets and cypselae

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Ланнузель Г., Піньяль М., Гатебле Г. 2022. **Критичні зауваження щодо статті Wang et al. "Лектотипіфікація назви *Brachyscome neocaledonica* = *Pytinicarpa neocaledonica* (*Asteraceae*: *Astereae*)", опублікованої в Українському ботанічному журналі (2022, 79(2): 77–83)**. *Український ботанічний журнал*, 79(5): 271–276 [In English].

Сільськогосподарський інститут Нової Каледонії, Нумеа, Нова Каледонія: Г. Ланнузель, Г. Гатебле. Організація з ведення червоного списку рослин, Нумеа, Нова Каледонія: Г. Ланнузель. Інститут систематики, еволюції та біорізноманіття (ISYEB), Париж, Франція: М. Піньяль. Національний інститут сільськогосподарських досліджень, Антіб, Жуан-ле-Пен, Франція: Г. Гатебле.

Реферат. У цьому повідомленні ми висвітлюємо низку можливих неправильних інтерпретацій (колекціонери, місцевості, попередні праці) та інші проблеми у номенклатурному дослідженні (Wang et al., 2022) щодо лектотипіфікації назви *Brachyscome neocaledonica* ≡ *Pytinicarpa neocaledonica* (*Asteraceae*: *Astereae*). На нашу думку, цей вибір лектотипу призвів до дискусійних висновків, які внесли непорозуміння до систематики *Pytinicarpa* G.L.Nesom, що є і без того таксономічно складним родом. Проте, ми приймаємо цей вибір лектотипу та пояснюємо його номенклатурні і таксономічні наслідки.

Ключові слова: *Brachyscome*, *Pytinicarpa*, Нова Каледонія, номенклатура, таксономія, типіфікація