

## A new lectotypification of *Zingiber gracile* var. *elatus* (Zingiberaceae)

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**ABSTRACT.** The previous lectotypification of *Zingiber gracile* Jack. var. *elatus* Ridl. is deemed ineffective and a new lectotypification is here proposed. The original varietal epithet ‘*elator*’, later also used at specific rank, is corrected here to ‘*elatus*’, to agree grammatically with the generic name.

**Keywords.** H.N. Ridley, lectotypification, Penang Hill, *Zingiber elator*, *Z. elatus*, *Z. gracile*

### Introduction

During my recent work on *Zingiber singaporense* Škornič., a new species from Singapore (Leong-Škorničková et al., 2014), all of the relevant literature on the *Zingiber gracile* complex was studied, including the protologues and existing revisions, along with an examination of the type specimens.

*Zingiber elatus* (Ridl.) Theilade was originally published and repeated in subsequent works with an incorrect grammatical Latin termination as *Zingiber gracile* var. *elator*/*Zingiber elator*, but is corrected here to ‘*elatus*’ following Arts 23.5, 24.2 and 32.2 of the ICN (McNeill et al., 2012). When discussing earlier work I use the spelling ‘*elatus*’, even when the authors of those earlier works used ‘*elator*’, unless I am quoting directly. It is currently recognised at specific rank, a conclusion with which I fully concur, but I discovered that there is nomenclatural confusion around this name. My initial failure to locate the specimen at SING that had been designated by Theilade (1998) as the lectotype of ‘*Zingiber elator* Ridl.’ (= *Zingiber gracile* Jack var. *elatus* Ridl.) led not only to the realisation that Ridley never recognised this name at specific rank, but also to a number of bibliographic mistakes in Theilade’s entry under this taxon and lectotype designation. The lectotype she designated is not an actual specimen but rather a mixture of data (locality, date and collection number) from two unrelated specimens representing two different taxa. The history of the basionym, *Zingiber gracile* var. *elatus*, the original material connected to it, and previous comments on this issue are chronologically reviewed in this paper. The reasons why previous lectotypification have to be deemed ineffective are explained, and the new lectotypification is proposed.

Ridley's brief entry (1899) on *Zingiber gracile* var. *elatus* reads [verbatim, including the spelling and formatting]:

*Var. elatior*

A very much taller slenderer plant with stems about five feet tall, leaves narrow linear lanceolate acuminate 10 inches by 1, peduncle 18 inches and spike 7 or 8.

Hills at 2000 feet or upwards. Penang Hill. Perak, Maxwell's Hill.

King No. 7954. Possibly a distinct species.

Ridley cited material from three locations, (1) Penang Hill, (2) Perak, Maxwell's Hill, and (3) King No. 7954 [collected from Perak], albeit with a remark that it is possibly a distinct species. Although Furtado noted (7 September 1931, handwritten note on one of the two sheets of *King 7954* in SING with an almost identical note also on the duplicate at K) "I take that Ridley used the words 'possibly a distinct species' to qualify his *var. elatior* and all the specimens quoted under it, not this specimen only", it is possible (as suggested by the formatting) that Ridley's remark belongs exclusively to the last element (3) *King 7954* which, unlike the elements (1) and (2), occurs in the lowlands (300–500 ft as per details on the specimens). In fact, when comparing Ridley's eligible original material from these three locations it is possible that three taxa are involved. Element (1) [single sheet at K, K000255246] from Penang Hill is certainly a different taxon from elements (2) [single sheet at SING, SING0176950] and (3) [2 sheets at SING, SING0176448, SING0176449; 1 sheet at K, K000255245]. Elements (2) and (3), although somewhat more similar to each other than to element (1), are also likely to be two different taxa based on inflorescence shape and proportions. Ridley's brief description of his *Zingiber gracile* var. *elatus* is a fusion of leaf measurements from element (1) and inflorescence measurements from element (2), while element (3) does not match the description in both leaves and inflorescence dimensions.

Holttum (1950) upheld this taxon at varietal level but did not select or indicate a preference for any of the original material as a type. Holttum (1950) accepted Furtado's interpretation of Ridley's entry, i.e. that *Zingiber gracile* var. *elatus* is possibly a distinct species, a view that was later shared by Theilade (1998) who went further, and incorrectly, interpreted this statement as Ridley's definitive acceptance of this taxon at specific level.

Theilade (1998), while revising *Zingiber* for Peninsular Malaysia, recognised all four varieties of *Zingiber gracile* listed by Holttum (*Zingiber gracile* var. *gracile*, *Z. gracile* var. *aurantiacum* Holttum, *Z. gracile* var. *elatus* Ridl. and *Z. gracile* var. *petiolatum* Holttum) at specific rank. For two of these, *Zingiber aurantiacum* (Holttum) Theilade and *Zingiber petiolatum* (Holttum) Theilade, she was quite explicit about raising the taxa to the rank of species and also designated lectotypes.

Theilade (1998) indicated Ridley as the author for *Zingiber elatus* even though Ridley (1899) clearly described this taxon at the varietal level and never published this

name at specific rank. She also selected a lectotype for this name, making it clear she did not consider herself to be the one effecting the change of rank.

Theilade's nomenclatural section reads [verbatim; discrepancies underlined]:

*Zingiber elatior* Ridl. (1899), J. Straits Brch. R. Asiat. Soc. 32: 130; (1924) Fl. Mal. Pen. 4: 260. — *Z. gracile* var. *elatior* Holttum (1950), Gdns' Bull. Singapore 13: 64.

There are two problems with this entry. Firstly, Ridley never published *Zingiber elatius* at specific rank in either of the two works cited by Theilade (i.e., Ridley, 1899, 1924). Secondly, the basionym should be *Zingiber gracile* Jack. var. *elatius* Ridl. but, for unknown reasons, Theilade assigns this name in her citation to Holttum (1950). Holttum, however, never claimed this name as his own but clearly assigned it to Ridley (Holttum, 1950: 64). Theilade's mistake in assigning the authorship of *Zingiber elatius* to Ridley was highlighted by Turner (2000) who suggested that the correct authorship should be *Zingiber elatius* (Ridl.) Theilade. Turner (2000) noted that 'notwithstanding several errors in bibliographic citation, the use of *elatior* is admissible as the publication of a new combination'. Turner's approach is in line with Art 41.6 of the ICN (McNeill et al., 2012) which states that errors in the citation of a basionym, including an incorrect author citation, do not preclude valid publication of a name at a new rank.

The designation of the lectotype of *Zingiber elatior* is equally confusing (Theilade, 1998) and reads [verbatim; discrepancies underlined]:

Type: Peninsular Malaysia, Penang, Apr. 1896, Ridley 9340 (SING lectotype!, K isotype!) Lectotype selected here.

The major problem with this statement is that no herbarium specimen exactly matching the above citation exists in SING or K.

The SING herbarium does not have, and has no record of ever having had, a specimen of *Ridley 9340*, contrary to Theilade's and Turner's statements of it being in SING. This has been confirmed by a manual search of the entire *Zingiber* collection as well as the entire Zingiberaceae type collection. Moreover, the entire general collection of the Zingiberaceae at SING has been barcoded and databased and *Ridley 9340* is not on record. There was also no sign of a *Ridley 9340* specimen in the now discontinued but still extant card index at SING which contains all of Ridley's collections in SING. From the 28 entries in the card index covering Ridley's collection numbers from 9226 to 9378 (including the closest numbers 9338 and 9342), it is obvious that Ridley collected in Penang in June 1898. This implies that *Ridley 9340* would also have been collected in June 1898. This conflicts with Theilade's information, which dated *Ridley 9340* to April 1896. The sheet with the closest information to Theilade's citation at SING is a specimen with barcode number S0176947 (Fig. 1), collected by Ridley in April 1896 in Penang, but with no collection number and no exact locality given.

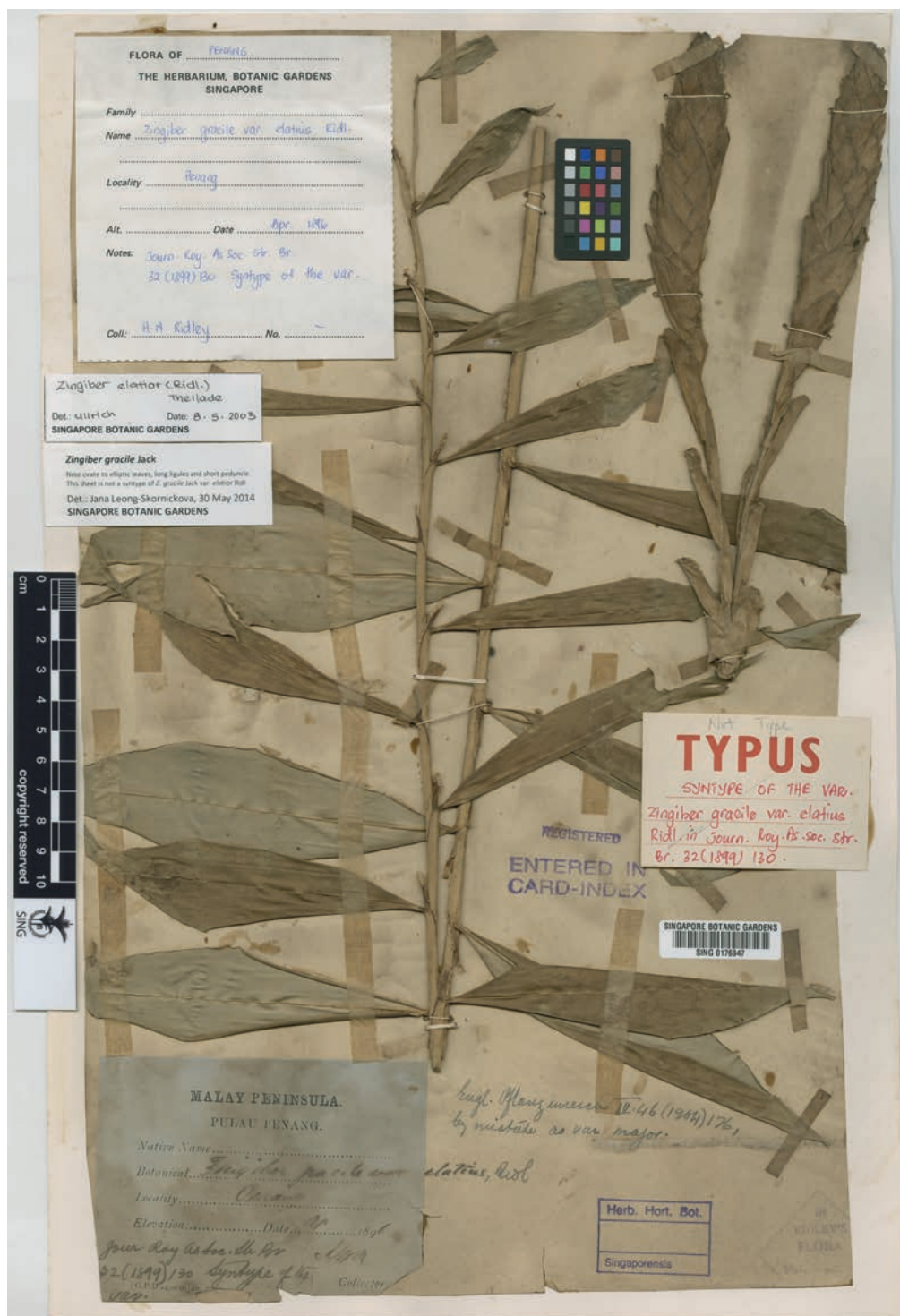


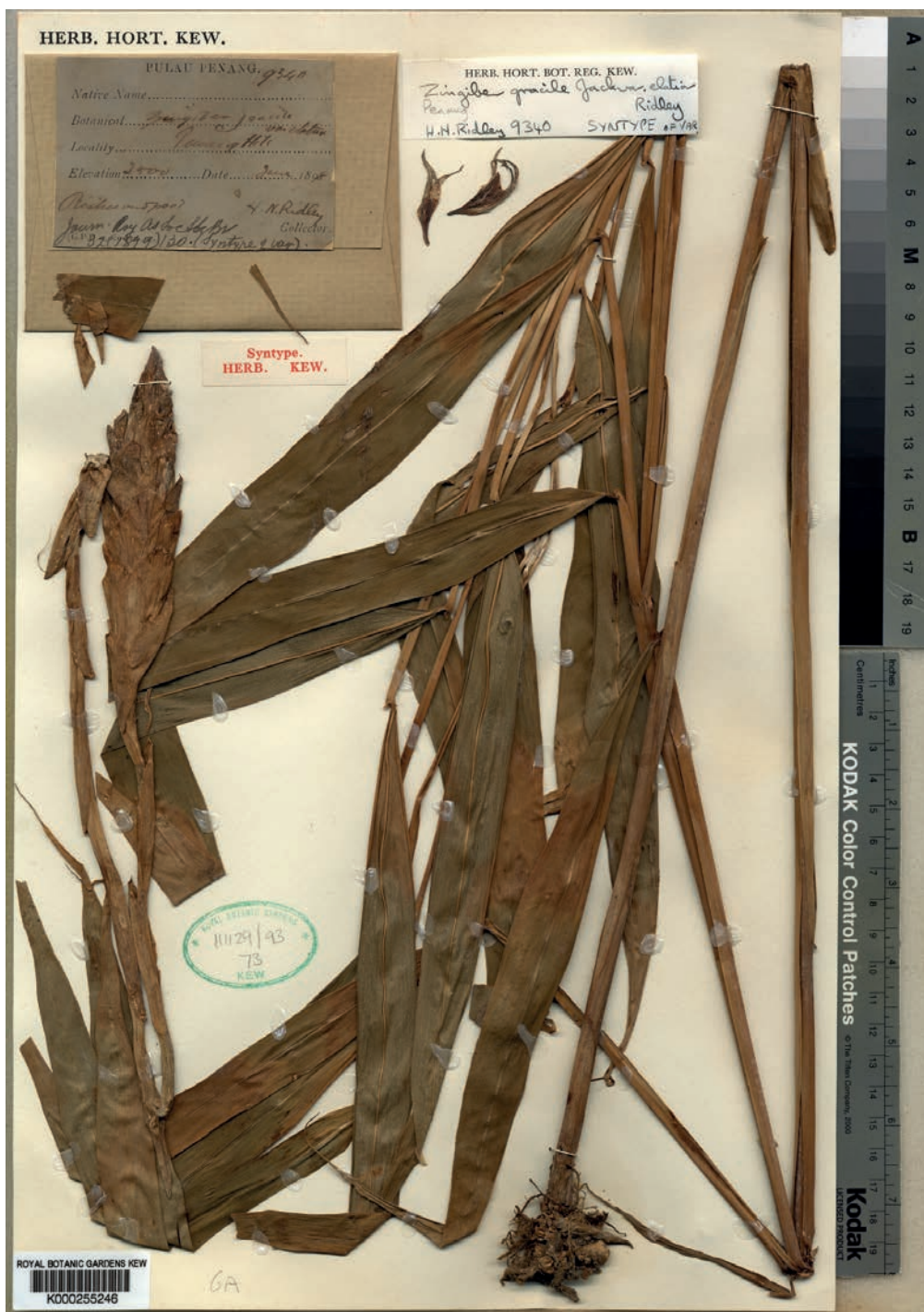
Fig. 1. Specimen of *Zingiber gracile* Jack. (SING; S0176947) collected by Ridley in Penang, April 1896. Reproduced with permission of Singapore Botanic Gardens.

There is no mention of Penang Hill - a locality which Ridley cites in his original entry. Penang Hill (823 m), being the highest point of Penang Island, is a more specific locality with a distinct flora than a generic Penang which often refers to lowland locations elsewhere on the island. Moreover this sheet is not a specimen of *Zingiber gracile* var. *elatus*, as outlined by Ridley, but rather *Z. gracile* var. *gracile* for which the type locality is also in Penang (note the ovate to elliptic leaves, long papery ligules and short peduncle). Holttum (1950), in fact, correctly cited this particular specimen under the nominal variety of *Zingiber gracile* in his account. What possibly confused Theilade is an addition to Ridley's original label in an unknown hand of 'var. *elatus*' and another remark in Furtado's hand that this sheet is the syntype of the variety (see Fig 1). It should also be noted, however, that there is no annotation by Theilade that would clearly indicate that this is indeed the specimen she intended to designate as the lectotype. Nevertheless, this specimen should not be considered to be part of the original material of *Zingiber gracile* var. *elatus* as it is not a good fit to the protologue in both locality data (as explained above) and morphology (it does not match the original description in either inflorescence or in leaf dimensions with peduncles c. 4 inches long, spike 4¼ inch long and largest lamina c. 6 × c.1⅝ inches compared to 18 inches long inflorescence, 7–8 inches long spike and lamina 10 × 1 inches as stated in the protologue).

The Kew herbarium has a single sheet of *Ridley 9340* [K000255246] in its holdings (Fig. 2). As expected, based on the search of the SING card index, the collection date is indeed June 1898 and the locality is recorded as Penang Hill, Richmond Pool, 2500 ft. This specimen is one of the two sheets on which Ridley based his description. Moreover, Ridley cited a collection from Penang Hill and this specimen is the only collection of *Zingiber* from Penang Hill which fits the original description at least partly (as explained in the beginning of the introduction) and predates the publication of the name.

In view of the information given above, Theilade's lectotypification has to be considered ineffective because a particular specimen was not clearly indicated as a lectotype and is, therefore, contrary to the ICN Art. 7.10 (McNeill et al., 2012). The Ridley specimen at SING (barcode SING0176947) is not annotated as *Ridley 9340* and does not fit the original description. On the other hand, it seems obvious that Theilade's "isotype" is the *Ridley 9340* at K (barcode K000255246), even though this belongs to a different gathering. In the absence of independent evidence, such as Theilade's annotations on either of the two specimens, it is impossible to make sense of Theilade's type designation and to make any correction under Art. 9.9 (McNeill et al., 2012). *Ridley 9340* (K) [K000255246] is, therefore, selected below as the new lectotype of the name *Zingiber gracile* Jack. var. *elatus* Ridl.

While Turner (2000) spotted discrepancies in the date and locality in Theilade's designation of *Ridley 9340* as a lectotype, and corrected it in his paper to June 1898, Penang Hill, he unfortunately did not realise that this collection is not extant at SING. Turner (2000) also considered the specimen of *Zingiber gracile* var. *gracile* discussed above, *Ridley s.n.* from Penang dated April 1896 (barcode S0176947), to be a syntype of *Z. gracile* var. *elatus*. This specimen is not, however, part of the original material.



**Fig. 2.** Specimen of *Zingiber elatius* (Ridl.) Thelade (K; K000255246) collected by Ridley in Penang Hill, in 1898 and designated here as the lectotype. Reproduced with permission of the Director and Board of Trustees, Royal Botanic Gardens, Kew.

Notes on the identity of *Zingiber elatus* from the type locality on Penang Hill, along with a colour plate, can be found in Leong-Škorničková et al. (2014). Confirmation of the identities of the remaining two elements from Ridley's protologue are pending re-collection of flowering material from their respective localities.

### New lectotypification

*Zingiber elatus* (Ridl.) Theilade, Gard. Bull. Singapore 48: 227 (1998 ['1996']). – *Zingiber gracile* Jack var. *elatus* Ridl., J. Straits Branch Roy. Asiat. Soc. 32: 130 (1899); Ridley, Fl. Malay Penins. 4: 260 (1924); Holttum, Gard. Bull. Singapore 13: 64 (1950). TYPE: Peninsular Malaysia, Penang, Penang Hill, Richmond Pool, 2500 ft, June 1898, *Ridley 9340* (lectotype K! [barcode K000255246], designated here).

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