Comments on proper type designation for names of taxa validated by Turczaninow in his *Animadversiones*, with case studies

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Abstract. General recommendations regarding proper type designation of names of taxa described by Turczaninow in his *Animadversiones* series of articles (as well as in some other publications) are provided. It is concluded that, as clearly indicated in the protologues, all (or almost all) taxa described in these publications are based on specimens from the private herbarium of Turczaninow which was donated in the 1840s to the Kharkiv University (CUW) and in the 1940s was transferred to the Institute of Botany in Kyiv (KW). Consequently, holotypes and syntypes of these taxa are now almost exclusively in KW. Several cases of correct and incorrect type designations are discussed, specifically of some South American *Brassicaceae*, *Geraniaceae* and *Hypericaceae*, Central American *Malvaceae*, and southern African *Polygalaceae*. Information on the re-discovered holotype (KW) of *Abelmoschus achanioides* Turcz. (now accepted as *Malvaviscus achanioides* (Turcz.) Fryxell, *Malvaceae*) is provided, and an earlier lectotypification of that name with a specimen from G is considered ineffective. The holotype of *Stenocalyx involutus* Turcz. (now considered a synonym of *Mezia includens* (Benth.) Cuatrec., *Malpighiaeae*) was originally in the Turczaninow herbarium, but the whole folder with that specimen is now missing in KW (considered lost or destroyed), and it was already missing in the mid-1920s, when the collection was still in CUW. Because of that the lectotype of *S. involutus* is designated here, the specimen from MPU, to replace the lost or destroyed holotype. The need for thorough analysis of protologues, available original material, and associated information for correct type designation/indication is emphasized.

Keywords: bibliography, *Brassicaceae*, *Geraniaceae*, herbarium, *Malpighiaeae*, *Malvaceae*, nomenclature, *Polygalaceae*, taxonomy, type, typification

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Реферат. Наведені загальні рекомендації щодо правильного позначення типів назв таксонів, що були описані М.С. Турчаніновим у серії статей "Animadversiones..." (а також у деяких інших його публікаціях). На основі чітких вказівок у протологах зроблено висновок про те, що усі (або майже всі) таксони, описані в цих публікаціях, базуються на зразках з приватного гербарію Турчанінова, який у 1840-х роках був подарований ним Харківському університету (CUW), а у 1940-х роках переміщений до Інституту ботаніки у Києві (KW). Отже, голотипи та синтипи цих таксонів зараз знаходяться майже виключно у гербарії KW. Обговорюються декілька випадків правильних та неправильних позначення типів, зокрема, для деяких південноамериканських представників родин *Brassicaceae*, *Geraniaceae* та *Hypericaceae*, центральноамериканських *Malvaceae* та південноафриканських *Polygalaceae*. Наведена інформація про віднайдений у KW голотип *Abelmoschus achanioides* Turcz. (зараз визнаний під назвою *Malvaviscus achanioides* (Turcz.) Fryxell, *Malvaceae*), а попередня лектотипіфікація цієї назви зразком з гербарію G визнана недійсною. Голотип *Stenocalyx involutus* Turcz. (нині розглядається як синонім визнаної назви *Mezia includens* (Benth.) Cuatrec., *Malpighiaeae*) раніше знаходився у гербарії Турчанінова, але вже після публікування цієї назви зразком з гербарію G визнана недійсною. Голотип *S. involutus* лектотипіфікована тут зразком з гербарію MPU, на заміну втраченого або знищеного голотипу.

Ключові слова: *Brassicaceae*, *Geraniaceae*, *Malpighiaeae*, *Malvaceae*, *Polygalaceae*, бібліографія, гербарій, номенклатура, систематика, тип, типіфікація

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Introduction

Nikolai S. Turczaninow (1796–1863; Николай Степанович Турчанинов in Russian, Микола Степанович Турчанинов in Ukrainian, also sometimes transliterated as Turczaninov, Turchaninov, Turtschaninow, or Turczaninoff), despite his amateur background (professionally he was a government administrator), was a prolific plant taxonomist of the 19th century who described numerous new taxa of plants from almost all parts of the world, especially Asia, South and Central America, southern Africa, and Australasia. Only a few species were described by him from Europe and North America north of Mexico. The number of plant names validated by Turczaninow is estimated at 172 genera and 1563 species (Myakushko, 1976; Myakushko et al., 1979; Shiyan, 2011), but these figures may be incomplete. The search in the IPNI database (https://www.ipni.org/, accessed 16 May 2019) resulted in 4170 records (including nomenclatural combinations), but some of those records are duplicates.

Many new genera and species were described by Turczaninow in three articles of his Animadversiones series published in five issues of Bulletin de la Société Impériale des Naturalistes de Moscou (Turczaninow, 1855, 1858a, 1858b, 1859, 1863). The complete bibliography is available from Stafleu and Cowan (1979; Shiyan, 2011), but these figures may be incomplete. The search in the IPNI database resulted in 4170 records (including nomenclatural combinations), but some of those records are duplicates.

Animadversiones... often consisted of two separately paginated parts, each with two issues ("numbers"). Thus, when citing publications in volumes of Bulletin de la Société Impériale des Naturalistes de Moscou with separate pagination of parts, it is important to indicate not just the issue number, but also the part number, and the issue and part numbers should not be confused. For example, the last article of the Animadversiones series (Turczaninow 1863) was published in part 1, issue 2 of volume 36, but not in part 2, as it was erroneously indicated in Stafleu and Cowan (1986: 541).

Almost all new taxa described by Turczaninow in his Animadversiones articles were based, unless noted otherwise, on specimens from his personal herbarium that he donated in the late 1840s to the Imperial Khar’kov [Kharkiv] University (now V.N. Karazin National University of Kharkiv, CWU) in exchange for a modest annual pension from the University (unfortunately, soon cut down and then cancelled by the university authorities) and the possibility to continue his studies and curation of the herbarium. The fact that Turczaninow used exclusively (or almost exclusively) the specimens from his collection is properly reflected even in the titles of his articles: Animadversiones ad primam partem herbarii Turczaninowiani, nunc Universitatis Caesareae Charkowiensis (Turczaninow, 1855), Animadversiones in secundam partem herbarii Turczaninowiani, nunc Universitatis Caesareae Charkowiensis [Animadversiones Part 2, published in three issues] (Turczaninow, 1858a, 1858b, 1859), and Animadversiones ad catalogum primum et secundum herbarii Universitatis Charkowiensis [Addenda to Animadversiones Parts 1 and 2] (Turczaninow, 1863). Thus, Turczaninow in fact explicitly stated that his Animadversiones constitute an annotated catalogue of selected (most interesting from his viewpoint) specimens from his personal herbarium, since the 1840s kept in CWU and in the 1940s transferred to KW.

The Turczaninow historical collection (informally referred to as KW–TURCZ) is now deposited at the National Herbarium of Ukraine in Kyiv (KW). It was transferred from Kharkiv (CWU) to Kyiv at the end of World War II (for history of the Turczaninow herbarium, see Myakushko, 1976; Myakushko et al., 1979; Marchant, 1990; Kamelin, Sytin, 1997; Shiyan, 2011; Mosyakin et al., 2018; and references therein). The specific circumstances of this transfer from CWU to KW remain insufficiently known.

The collection is kept separately from other KW collections and is estimated to contain at least 150 000 (more probably 170 000 or more) specimens representing ca. 53 000 plant taxa from all parts of the Globe (see Shiyan (2011), and references therein). The exact number of specimens is difficult to estimate because the main part of the collection remains unmounted, kept as it was originally maintained by Turczaninow (which is important for maintaining the original arrangement of plant material and associated labels and folders for further research), and many sheets contain two or more specimens with associated labels.

Herbarium acronyms are given following Index Herbariorum (Thiers 2008–onward).
In the 1970s the curatorial staff of KW led by Taisia Ya. Myakushko [Omel‘chuk–Myakushko] started activities aimed at inventory, cataloguing, and mounting of types of taxa validated by Turczaninow. By 1979 the managed and mounted part of the type collection contained ca. 1120 specimens, also systematized in a card catalogue. The plant families best represented in the catalogue were Myrtaceae (128 species), Asteraceae (109), Fabaceae (78), Verbenaceae (72), Sterculiaceae (62), Malvaceae (44), Tiliaceae (39), Rutaceae (39), Apocynaceae (38), Apiaceae (22), etc. (Myakushko et al., 1979, 1981).

Since then, additional type specimens were revealed and added to the type collection, and all these specimens were digitized and databased in the course of implementation of three projects supported by The Andrew W. Mellon Foundation during 2007–2016 within the framework of the African Plants Initiative, Latin American Plants Initiative, and the Global Plants Initiative. Now these digital images and associated data are available through JSTOR Global Plants (https://plants.jstor.org), as well as other identified type specimens from KW.

It should be noted that in older literature the Turczaninow types were often cited as definitely or supposedly held in St. Petersburg (LE) or Moscow (MW). Those herbaria indeed contain numerous specimens collected by Turczaninow, especially the main part of his Siberian collection, which is best represented in LE (see Lipschitz, Vasilchenko, 1968; Myakushko et al., 1979; etc.). The LE and MW herbaria also contain many duplicates of worldwide gatherings, specimens of which (those kept in his herbarium) were used by Turczaninow, but not the holotypes or syntypes of the names validated in Animadversiones and some other Turczaninow’s publications; those holotypes and syntypes are now almost exclusively in KW. Seregin (2010: 71) commented on that as follows: "There is a misbelief (see, for instance, the web-version of Cyclopaedia of Malesian Collectors), that MW or and LE possess Turczaninow’s holotypes. In the case of MW this belief is largely based on the fact, that his protologues were published in Bulletin de la Société Impériale des Naturalistes de Moscou (this serial is still continued as Byulleten’ Moskovskogo Obshchestva Ispytatelei Prirody, Otdel Biologicheskii). The personal collection of Turczaninow with numerous authentic specimens was conserved for a long time in the Kharkov University. Nazi decided to move this treasure to Germany as a war trophy in 1940s, but due to a logistic mistake the railway carriage had not arrived to the destination point. Turczaninow’s herbarium was completely returned by restitution to Kiev soon after the end of World War II. Now this historic collection is conserved in the Kholodny Botanical Institute, Kiev (Ukraine) as a separate unit, and the holotypes should be searched for there” (see also comments in Mosyakin, de Lange, 2019).

Mosyakin and co-authors have already briefly discussed the problem of the type status of original specimens and type designation for plant names validated by Turczaninow in his Animadversiones, using the case of two names in Celastraceae considered in our proposal to conserve the name Tontelea attenuata Miers (1872: 384) against Maytenus amygdalina Turczaninow (1858b: 451) (Biral et al., 2019), and the cases of four taxa of Geraniaceae described by Turczaninow from New Zealand and Australia (Mosyakin, de Lange, 2019).

Here we provide general recommendations regarding type designation for the names published by Turczaninow, specifically those validated in his Animadversiones. These recommendations should not, however, be applied uncritically to taxa described by Turczaninow in his other publications in which no clear statement of the usage of specimens from his own herbarium was present, such as his Flora-Baicalensis-Dahurica [see details and bibliography in Stafleu (1969) and Stafleu and Cowan (1986)], and to taxa based on his own field collections in Siberia because it is documented that the author during that period of his activities widely shared his duplicates with many persons and institutions, and his original specimens are now present in many other herbaria, especially G, LE, K, MW, etc. (see Stafleu, Cowan, 1986). Also, it is evident that, for example, in his Decas... series (e.g., Turczaninow, 1843, 1847, 1852, etc.; see bibliography in Stafleu, Cowan, 1986) Turczaninow used mainly or exclusively material from his herbarium; however, there is no explicit statement on that in the protologues, with some exceptions. For example, when describing Holopetalum pumilum Turczaninow (1843: 51) he cited "Reseda n. 7533 in Drège coll. pl. Capens.,” and Drège collections from southern Africa are present in many herbaria. However, Turczaninow (1843: 52) also indicated that seeds in his specimens are immature ("Semina in speciminibus meis immatura"), which can be viewed as a reference to his herbarium.
General guidelines for identification of the type status of original specimens and for typification of plant names validated by Turczaninow in his Animadversiones

The following general guidelines provide more detailed recommendations and are based on relevant provisions of Art. 9 of the ICN [here and below the ICN articles refer to the Shenzhen Code (Turland et al., 2018), unless noted otherwise], and also explanations and recommendations by McNeill (2014) specifically for holotypes.

(1) For all taxa described by Turczaninow in his Animadversiones and some other publications that were explicitly based, unless noted otherwise in the protologue, on specimens from Turczaninow’s private herbarium donated first to CWU (in the 1840s) and then transferred to KW (in the 1940s), all (or almost all) types (holotypes or syntypes) are now in KW. Exceptions are very few, and for those exceptional cases Turczaninow usually clearly indicated that he has seen also specimens from other herbaria.

(2) If Turczaninow indicated or mentioned in the protologue just one specimen, and if there is just one corresponding specimen in KW-TURCZ, that specimen should be considered the holotype and that type designation is final (Art. 9.1 of the ICN).

(3) However, “the possibility that the author used additional, uncited specimens or illustrations (which may have been lost or destroyed) must always be considered” (Art. 9.1, Note 1 of the ICN). For such specific cases McNeill (2014: 1113), to ensure validity of type designations on or after 1 January 2001, recommended the following: “It is, therefore, wise for authors who are doubtful as to whether or not a particular specimen in one herbarium is the holotype to cite it as: “Lectotype, designated here (or perhaps holotype)”. Thus, if Turczaninow indicated in the protologue just one gathering, and if there is just one corresponding extant specimen in KW-TURCZ, that specimen is most probably the holotype. If that KW specimen was cited/designated as the holotype, lectotype, or just “type” prior to 1 January 2001, that type designation should stand even if an additional original specimen or specimens studied by Turczaninow is/are found in KW. In that case the specimen first designated as the “holotype” or “type” should be corrected to “lectotype” following Art. 9.10 of the ICN. However, if no type designation for a particular Turczaninow’s taxon has been made prior to 1 January 2001, it is possible (or in some cases even advisable) to cite the only existing original specimen from KW-TURCZ with the type designation as “Lectotype, designated here (or perhaps holotype)”, following the recommendation of McNeill (2014).

(4) If Turczaninow indicated in the protologue one gathering but there are two or more corresponding specimens in KW-TURCZ, these specimens are syntypes (Art. 9.6 of the ICN). The lectotype should be selected preferably from these syntypes (Art. 9.11 and 9.12 of the ICN). However, if two or more corresponding sheets in KW-TURCZ have just one original label, are clearly cross-referenced (for example, as “Sheet 1” and “Sheet 2”, or “I” and “II”, or “a” and “b”, etc.), and belong to one taxon (i.e., do not represent a mixed collection), they may constitute one specimen mounted on two or more sheets (Art. 8.2 and 8.3 of the ICN). Such cross-references, and often also additional curatorial labels (copies of original labels), were usually added by the curatorial staff of KW in the 1970s–1980s (and occasionally later) when the Turczaninow type specimens were pulled out from his mainly unmouted original collection, catalogued on paper cards, and mounted (see Myakushko et al., 1979). If there is just one original specimen in KW-TURCZ mounted on two or more sheets, that specimen is the holotype (but see paragraph (3) above). Examples of such type specimens mounted on two sheets are *Maytenus amygdalina* Turcz. (holotype on KW001001094 and KW001001095; see Biral et al., 2019) and *Erodium peristeroides* Turcz. (holotype on KW001001021 and KW001001022; see Mosyakin, de Lange, 2019).

(5) If Turczaninow indicated in the protologue two or more gatherings, all corresponding specimens in KW-TURCZ are syntypes (9.6 of the ICN). The lectotype should be preferably selected from these syntypes (Art. 9.11 and 9.12 of the ICN). The possibility that one of the original gatherings present in KW-TURCZ is in fact one specimen mounted on two or more sheets should be also critically considered (see paragraph (4) above).

(6) If no original material (as defined in Art. 9.4 of the ICN) is currently present in the Turczaninow herbarium at KW (i.e. presumably lost or destroyed), a lectotype may be selected from other original material that is extant in other herbaria (usually isotypes or isosyntypes, i.e., duplicates of the types or syntypes indicated by Turczaninow in the protologue and belonging to the same gathering or gatherings). However, if the lost holotype is rediscovered, the lectotypification will have no standing because the holotype always takes precedence over a lectotype.
(7) If no original material (as defined in Art. 9.4 of the ICN) is known to be present in the Turczaninow herbarium at KW and in other herbaria (i.e., if all original material is presumably lost or destroyed), a neotype may be selected (Art. 9.8 and 9.13 of the ICN). However, a neotype serves as the nomenclatural type only as long as original material is missing. If any part of the original material is found to exist (rediscovered), a lectotype should be designated from it because a lectotype always takes precedence over a neotype [Art. 9.13 of the ICN, except as provided by Art. 9.16 and 9.19(c)].

Consequently, any lectotype of a Turczaninow's taxon name validated in *Animadversiones* (as well as in some other publications by Turczaninow) that was designated by any author not from specimens housed at KW-TURCZ but from another herbarium without considering Turczaninow specimens will have no standing if it is demonstrated that the holotype ("the one specimen... either (a) indicated by the author(s) as the nomenclatural type or (b) used by the author(s) when no type was indicated"; Art. 9.1 of the ICN) of that taxon is extant in KW. If there are two or more syntypes in KW, a lectotype should be preferably selected from those syntypes.

However, the current wording of Art. 9.12 of the ICN makes syntypes and isosyntypes in fact equal in lectotype designation: "In lectotype designation, an isotype must be chosen if such exists, or otherwise a syntype or isosyntype if such exists". Thus, formally, if an isosyntype from some herbarium (but not a syntype from KW) has been designated by some author(s) as a lectotype of Turczaninow's taxon described in *Animadversiones*, that designation should stand. In our opinion, the specimens cited in the protologue (syntypes; see Art. 9.6) should be always preferred in lectotype designation over uncited specimens (isosyntypes; see Art. 9.4, footnote).

It would be also advisable to formalize that provision in the next edition of the Code and to ensure that a syntype should always take precedence over an isosyntype. In our opinion, it can be achieved through a proposal to amend the first sentence of Art. 9.12 of the ICN as follows: "In lectotype designation, an isotype must be chosen if such exists, or otherwise a syntype if such exists, or otherwise an isosyntype if such exists" (as compared to the current wording: "In lectotype designation, an isotype must be chosen if such exists, or otherwise a syntype or isosyntype if such exists"). The relevant proposal to amend the Code has been prepared, and it will be formally submitted as soon as the procedures and timetable are published in *Taxon* (expected late 2019 or early 2020).

Thus, we urge all plant taxonomists working on type designation for taxa described by Turczaninow (especially those validated in his *Animadversiones* series definitely and explicitly based on his private herbarium, now in KW) to consult first the specimens available in KW-TURCZ and/or their digital images (mainly available from JSTOR Global Plants: https://plants.jstor.org).

Additional explanation should be provided for specific cases of lectotypification of taxa validated by Turczaninow. If in KW-TURCZ there is just one original specimen of a particular Turczaninow's taxon originally described in the protologue with an indication of Turczaninow's herbarium, that specimen is most probably the holotype (see details above). However, both before and after 1 January 2001 lectotypifications of names with such specimens are not erroneous (see the South American *Geranium* case discussed below).

Consequently, for the cases considered above, all duplicates of the KW holotypes (or probable holotypes that were indicated or designated as lectotypes by typifying authors) belonging to the same gathering but housed in other herbaria are in fact isotypes (or isolectotypes, if formal lectotypifications based on KW specimens have been done).

Taking into consideration the above arguments, we provide below the nomenclatural examples (with some corrected typifications) for selected plant names validated by Turczaninow in his *Animadversiones*.

**Selected case studies**

*Brassicaceae: South American Draba*

An example of the correct type designation/indication of Turczaninow's plant names is the recent treatment of South American taxa of *Draba* Linnaeus (1753: 642) by Al-Shehbaz (2018), who in all cases accepted unique specimens from KW-TURCZ as holotypes of the names validated by Turczaninow (1855). However, if, for any particular taxon of *Draba* currently represented in KW-TURCZ by just one specimen, any additional original specimen definitely studied by Turczaninow is found in KW (which is rather improbable), lectotypification will be necessary because the holotype indication was made by Al-Shehbaz (2018) after 1 January 2001, and there is currently no option in the ICN for automatic correction of the indication of a supposed holotype to the designation of a lectotype, unless the words "designated here", "hic designatus", or an equivalent...
(Art. 7.11 and Art. 9 Note 6 of the ICN) were used by the typifying author after 1 January 2001 (see McNeill, 2014).

**Geraniaceae: South American Geranium**

Four currently recognized South American taxa of *Geranium* described by Turczaninow (1858b) were **lectotypified** by Aedo et al. (2003; see also Aedo, 2012) with the specimens from KW, based on images (photographs) studied. For each of these four names, only one original specimen currently exists in the Turczaninow herbarium, and thus these four specimens can be considered holotypes of the four names. These lectotype designations with the words "here designated" made by Aedo et al. (2003) instead of indications of holotypes are, however, acceptable and correct under the current *Shenzhen Code* (Turland et al., 2018), as they were also under the previous *Melbourne Code* (McNeill et al., 2012; see also McNeill, 2014) and earlier *Codes*. Digital images of these four lectotypes (or, in fact, holotypes — cf. Art. 9.1 and 9.10 of the ICN) of *Geranium* names are now available online from JSTOR Global Plants:

*Geranium lindenianum* Turczaninow (1858b: 417; https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001000002); *G. multiceps* Turczaninow (1858b: 417; https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001000001); *G. subnudicaule* Turczaninow (1858b: 418; https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001001017), and *G. velutinum* Turczaninow (1858b: 417; https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001001018).

**Malpighiaceae: Stenocalyx involutus**

The generic name *Stenocalyx* Turczaninow (1858b: 393) and the species name *Stenocalyx involutus* Turczaninow (1858b: 394) were validated by a single description (*descriptio generico-specifica*, Art. 38.5 of the ICN; Turland et al., 2018).

Unfortunately, the generic name proposed by Turczaninow is a latter homonym of *Stenocalyx* O.Berg (1856: 309) belonging to *Myrtaceae*, and thus the currently accepted name for the genus of *Malpighiaceae* proposed by Turczaninow as *Stenocalyx* is *Mezia* Schwacke ex Niedenzu (1890: 58); see further taxonomic and nomenclatural details in C. Anderson and W.R. Anderson (2018) and Cuatrecasas and Croat (1980).

The following provenance was cited for *Stenocalyx involutus* in the protologue: "In provincia Caraboba Venezuelae, prope St.-Estevan, alt. 1000 ped. Funck et Schlim n. 518". Judging from the handwritten Turczaninow's catalogue of his herbarium currently held at KW (see Diachenko et al., 2015), the corresponding specimen (or specimens?) was (were) held in Folder 83. However, this whole folder is missing, and it was already missing in 1924–1925, when an inventory of the Turczaninow herbarium has been done in CWU by E.M. Lavrenko and others (Diachenko et al., 2015: 276, 278).

C. Anderson and W.R. Anderson (2018: 355) assumed that the type of *Stenocalyx involutus* is deposited in KW (which is not the case, as reported above) and provided the following type information: "Type: Venezuela, Carabobo, 'St. Estevan' [San Esteban, 10°26' N, 68°00' W], 1845—46, Funck & Schlim 518 (holo KW?; iso G, MPU*)".

Thus, they indicated the presence of other original specimens in herbaria of Geneva and Montpellier, and, since the holotype from KW cited by Turczaninow is lost or destroyed, a lectotype should be selected from other extant original material (Art. 9.12 of the ICN), in that case an isotype (or isosyntype). We thus designate here the specimen from MPU (barcode MPU021273) as the lectotype of *Stenocalyx involutus*.

**Mezia includens** (Benth.) Cuatrecasas (1958: 450) ≡ *Tetrapterys includens* Bentham (1848: 133) ≡ *Diplopterys includens* (Benth.) Niedenzu (1928: 226).

Type: FRENCH GUIANA: 'Cayenne': Martin s.n. K — Bentham Herbarium [*vide* Anderson and Anderson (2018: 355), cited as the holotype; isotype in K — Hooker Herbarium], *non vidi*.

≡ *Stenocalyx involutus* Turczaninow (1858b: 394) ≡ *Diplopterys involuta* (Turcz.) Niedenzu (1928: 226).

Type: VENEZUELA: "No. 518 | *Stenocalyx* includens | Turczan. [*identification probably added later, in another hand*] | fl. jaunes | San Estevan (Caraboba) | Funcke [Funck] & Schlim | Coll. 1845—6", MPU, barcode MPU021273 (*lectotype, designated here* to replace the lost or destroyed holotype originally held at CWU; image available from https://plants.jstor.org/stable/10.5555/al.ap.specimen.mpu021273 and https://herbier.umontpellier.fr/zoomify/zoomify.php?fichier=MPU021273).

**Malvaceae from Central America**

Dorr (2017: 25) cited the following type information for the name *Cybiostigma sidifolium* Turczaninow (1852: 155, as "sidaefolium"), the basionym of the currently accepted name *Ayenia sidifolia* (Turcz.) Hemsley (1979: 135): "Cybiostigma sidifolium Turcz., Bull. Soc. Imp. Naturalistes Moscou 25(3):155. 1852. *Ayenia*
mexicana Turcz., Bull. Soc. Imp. Naturalistes Moscou 36(2):569. 1863, nom. superfl. Type: Mexico. Oaxaca: savannah near the Pacific, 3000 ft, 1840 (fl), H. Galeotti 326 (lectotype, as "tipo" designated by Cristobal 1960: G [G00358304 as image!]; isolecotypes: BR [BR0000005423101 as image!], K [K000543778!], K [K000543779!], KW [KW001000156 as image!], P [P02286136 as image!]"

Thus, he accepted the type (in fact, the lectotype, image available from https://plants.jstor.org/stable/10.5555/al.ap.specimen.g00358304) designated by Cristóbal (1960), and formally did it correctly, even despite the fact that the unique original specimen studied and annotated by Turczaninow is present in KW (image available from https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001000156), because there was no explicit indication of a particular specimen or herbarium in the protologue (one of Turczaninow’s Decas... articles, see above). However, this case is not the best typification practice: the KW specimen was evidently the best option for designation of a lectotype because it bears the annotation by Turczaninow, belonged to his personal herbarium, and was definitely studied by him.

Fryxell (1979: 253) proposed a new combination Malaviscus achanioides (Turcz.) Fryxell based on Abelmoschus achanioides Turczaninow (1858a: 196) and cited the type as deposited in Geneva: "Linden 838 [938] (G as photo NY)". Indeed, the G herbarium has two supposedly original specimens (one mounted on two sheets) of probably the same gathering, but with the collection number reported as Linden 938, and/or 938 on an envelope on one sheet (images available from https://plants.jstor.org/stable/10.5555/al.ap.specimen.g00353129 and https://plants.jstor.org/stable/10.5555/al.ap.specimen.g00353130). However, the holotype (Fig. 1) was recently found by the first author (Sergei Mosyakin) in the general unmounted part of the Turczaninow collection in KW; it is well preserved and rather complete (a branch with four leaves, one flower, and buds). That specimen has not been added earlier to the collection of mounted types, most probably because Turczaninow’s original identification "Abelmoschus achanioides Turcz." was written directly on the folder but not on a label. Such identifications on the folder only were sometimes practiced by Turczaninow, especially during later years of his life. The collection number on the original label is clearly given as Linden 838, exactly as in the protologue. It is thus definitely the one specimen cited in the protologue. The proper type designation is provided below.

Malaviscus achanioides (Turcz.) Fryxell (1979: 253)
≡ Abelmoschus achanioides Turczaninow (1858a: 196)
≡ Hibiscus achanioides (Turcz.) Hemsley (1879: 121).
Type: MEXICO: "Hibiscus | [shrub sign] fl. rouge | forêt de Teapa | Mexique, Etat de Tabasco | Hauteur 2000 p [feet] | 1839 Linden 838", KW, barcode KW001000368 (holotype), Fig. 1.

Several other holotypes and syntypes of Turczaninow’s Malvaceae that were previously considered lost (e.g., see the list in Fryxell, Krapovickas, 1990) have been recently re-discovered by Sergei Mosyakin and Ganna Boiko among unmounted specimens in the Turczaninow Herbarium (KW-TURCZ), including the holotypes of Malva mathewsii Turczaninow (1863: 563), M. scorpioides Turczaninow (1863: 562), and Sphaeralcea galeottii Turczaninow (1858a: 186). These and some other type specimens of Malvaceae newly found in the Turczaninow Herbarium will be considered in a special article.

Polygalaceae: southern African Polygala
In their checklist of southern African taxa of Polygala Linnaeus (1753: 701), Figueiredo et al. (2013) correctly indicated the types (holotypes) of Turczaninow’s taxa as deposited in KW and corrected the earlier type (lectotype) designation made by Paiva (1998) for the name P. ciliatifolia Turczaninow (1855: 347) [considered a synonym of P. umbellata L.: Linnaeus (1771: 259)] to the holotype in KW (KW001000268, image available from https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw001000268): "Although Paiva designated the M specimen as lectotype (Paiva 1998: 271), it is considered that all types of Turczaninow are at Kiew (KW, Ukraine)" (Figueiredo et al. 2013: 5).

As we discussed above, not all types of Turczaninow are in Kyiv, but those of almost all taxa described in Animadversiones (including P. ciliatifolia) are certainly at KW.

Hypericaceae: South American Hypericum
In his taxonomic treatment of Hypericum L. (Linnaeus, 1753: 783) sect. Brathys (L. fil.) Choisy (1821: 58) [= Brathys L.f. (Linnaeus fil., 1782: pl. 43, 268)], Robson (1987) in all cases indicated the names validated by Turczaninow as deposited in LE (as four holotypes and one lectotype). In fact, all these taxa were published in Animadversiones (Turczaninow, 1858b) and their types (holotypes, or syntypes if two or more specimens or gatherings were indicated in the protologue) are in KW-TURCZ. Images of most of these KW specimens of Hypericum are available online from
Figure. Holotype of *Abelmoschus achanioides* Turcz. (KW001003068), now accepted as *Malvaviscus achanioides* (Turcz.) Fryxell.
JSTOR Global Plants, with some exceptions of a few supposedly missing specimens. We were able to locate recently these previously unaccounted specimens in the unmounted part of the Turczaninow collection, and the herbarium citations with corrected typifications will be published in a separate nomenclatural note (Mosyakin et al., in preparation).

Concluding remarks

Many additional examples of correct and incorrect indications or designations of types of plant names validated by Turczaninow in his *Promotiones* and in some other publications can be provided. Some specific cases will be discussed in more detail in forthcoming articles. In any case, a critical analysis of the protologue, available original material, and associated information is crucial for correct type designation/indication for Turczaninow's names, as well as names published by any other author. It is much easily done now than it used to be before, mainly because of the growing online availability of digitized protologues and herbarium specimens.

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