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Taxonomic review of the genus *Kelissa* Ravenna (Iridaceae)

Leonardo Paz Deble [1, 2]

Resumo. Revisão taxonômica do gênero *Kelissa* Ravenna (Iridaceae). É realizada a revisão taxonômica do gênero *Kelissa*, sendo o referido gênero constituído de uma única espécie, *Kelissa brasiliensis*, endêmica do estado do Rio Grande do Sul, Brazil. *Kelissa brasiliensis* prospera em regiões montanhosos associadas a formações campestres, principalmente no sudeste do estado do Rio Grande do Sul, mas com populações estendendo-se até a região central e oeste do estado. *Kelissa brasiliensis* é descrita e detalhadamente ilustrada e tem sua distribuição geográfica representada em mapa. São fornecidos dados sobre etimologia, distribuição geográfica, habitat, fenologia, conservação, usos e nomes vernáculos, além de discussões sobre as relações taxonômicas de *Kelissa* com seus táxones afins. Uma chave dicotômica para a distinção dos gêneros de Iridaceae-Tigridieae da América do Sul é apresentada.
Palavras-chave: Bioma Pampa, Campos, Cypelóide, Tigridieae.

Abstract. Taxonomic review of the genus *Kelissa* Ravenna (Iridaceae). A taxonomic review of the genus *Kelissa* is performed. This genus is constituted by a single species, *Kelissa brasiliensis*, endemic to the state of Rio Grande do Sul, Brazil. *Kelissa brasiliensis* prospers in mountainous regions associated with grasslands, mainly in the southeastern part of the state of Rio Grande do Sul, but with populations extending to the central and western regions of the state. *Kelissa brasiliensis* is described and illustrated in detail and its geographic distribution is represented on a map. Data on etymology, geographic distribution, habitat, phenology, conservation, uses and vernacular names are provided, as well as discussions of taxonomic relationships of *Kelissa* with related taxa. A dichotomous key for distinguishing the genera of Iridaceae-Tigridieae from South America is presented.
Key Words: Pampa Biome, Grasslands, Cypelloid, Tigridieae.

The first reference to this singular genus is due to Friedrich Wilhelm Klatt (1825-1897), who analyzed two vouchers performed by the Prussian naturalist Friedrich Sellow (1789-1831) in the state of Rio Grande do Sul (Sellow 1370 and 2863). These materials were firstly identified as *Herbertia Drummondiana* Herbert (1842: 65) (Klatt 1862). Baker (1877) in his *Systema Iridacearum* verified Klatt's mistake in linking the name of a North American species to a South American taxon, and proposed the name *Herbertia brasiliensis* Baker (1877: 134) for this species. Later, in the *Handbook of Irideae*, Baker (1892) presented a list and brief description of valid taxa for *Herbertia* Sweet (1827: pl. 222), among them *H. brasiliensis*, which he considered "Habito of H. pulchella". Later, Kuntze (1898) recognized *Herbertia* as illegitimate and transferred *H. brasiliensis* to *Alophia* Herbert (1840: pl. 3779). In a later study, Goldblatt (1975) identified the type of *Alophia* as distinct from *Herbertia*, rehabilitated *Trifurcia* Herbert (1840: pl. 3779), proposing the binomial *Trifurcia brasiliensis*. Floschultz & Grolle (1975) suggested that *Herbertia* should not be rejected as its pronunciation is distinct from *Herberta* A. Gray or *Herbertus*. Later, Goldblatt (1978) reestablishes *Herbertia* as a valid name, and lists *Herbertia brasiliensis* among the accepted taxa for the genus.

Ravenna (1981a) reported that in 1959, he borrowed from the Berlin Herbarium (B) the

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[1] Universidade Federal do Pampa – Unipampa campus Dom Pedrito, Rua 21 de abril 80, CEP 96450-000. E-mail: deble.biol@gmail.com (author for correspondence). ORCID: https://orcid.org/0000-0001-5600-3022
[2] Núcleo de Pesquisas Botânicas Balduíno Rambo, Universidade Federal de Santa Maria, Av. Roraima, CEP 97105-900.

exsiccates used by Klatt and Baker to describe, respectively, *Herbertia Drummondiana* and *H. brasiliensis*, and recognized this material as very different from the other species of the genus. According to Ravenna, in 1963 he was able to identify two collections of this taxon among the indeterminate species of the Herbarium Bradeanum (HB), the first ones since Sellow, and this material presented more precise data: "Rio Grande do Sul, Caçapava, Caminho Gruta do Segredo". In 1965, Ravenna went to the place indicated in the collections of HB Herbarium and found specimens, being able to recognize that due to its characteristics it should be inserted in a new genus. Thus, Ravenna (1981a) proposed the genus *Kelissa*, presenting botanical description, list of synonyms, typification and discussions on the taxonomic relationships of the taxon. Almost concurrently, Ravenna (1981b) described the genus and new species *Sympa riograndensis* based on exsiccates collected by J.C. Lindeman in 1971, in the state of Rio Grande do Sul. The author reported that the main feature to separate *Sympa* and *Trifurcia* (= *Herbertia*) consists of the columnar androecium, with filaments fused and continuous with the anthers and stamens surrounding the style. These morphological characteristics are the same those mentioned for *Kelissa* (see Ravenna 1981a). Later, the author himself recognized that *Sympa riograndensis* is based on exsiccates from two different species: *Kelissa brasiliensis* and *Herbertia quareimana* Ravenna (1989: 55), which is why the genus and species *Sympa riograndensis* should be rejected and listed as *nomem ambigua et confusa* (see Ravenna 2009: 7-8).

Kelissa was recognized as segregated until the beginning of the 21st century, when Roitman & Castillo (2007) subordinated the genus to *Cypella*, proposing the name *Cypella brasiliensis* (Baker 1877: 134) Roitman & Castillo (2007: 238). This concept was followed by Roitman *et al.* (2008), in the *Catalogo de las Plantas Vasculares del Conosur* and by Goldblatt & Manning (2008), in *The Iris Family.* Subsequently, Ravenna (2009) rehabilitated *Kelissa,* while Chauveau *et al.* (2012) suggested that the taxa *Kelissa brasiliensis, Onira unguiculata* and *Cypella Hauthalii* form a distinct clade from the others that includes the remaining species of *Cypella.* Recently, Deble & Alves (2020) excluded *Kelissa* from *Cypella,* based mainly on the morphological peculiarities of the taxon.

Material and Methods

The research was carried out by field surveys, and analysis of herbarium specimens, including digital images (herbaria CTES, FCQ, HDCF, FURG, ICN, MVHM, MVM, MVFA, MVJB, PACA, PY, SI, SMDB; acronyms according to Thiers 2021+). Collected specimens were deposited into PACA herbarium. The description of the taxon is based on morphological characteristics of both the plants observed in natural habitat and on dry material. The physiographic regions of the Rio Grande do Sul state cited in the text follows Fortes (1959). For the elaboration of the Figure 1, was used watercolor on Bristol paper, and the illustration it is based on specimens cultivated from *L.P. Deble et al. 8712*. For the elaboration of figure 2, was utilized the software ArcMap version 10.7, and the features were created from the base titled Topographic. The points of occurrence of the species represent both, specimens examined and specimens observed. For the elaboration of Figures 3 and 4, were used photographs of specimens in nature or in cultivation and the boards were edited in the Adobe photoshop program, version 23.x. The morphological data mentioned in the text and the terminology used follow Ravenna (1981a), Goldblatt & Manning (2008) and Beentje (2010).

Taxonomic treatment

The morphological comparison of *Kelissa* with other genera of Iridaceae strongly supports it as a segregated genus of the tribe Tigridieae, evidenced by several morphologic features and properly commented in the topic Discussion. At the end of the topic is presented a provisional key for the distinction of the genera natives represented in South America.

Kelissa Ravenna, Adansonia 1 (3): 106. 1981. Typus: *Herbertia brasiliensis* Baker, Journal of the Linnean Society, London 16 (89): 134. 1877. Figures 1, 2, 3 and 4.

= *Sympa* Ravenna, Wrightia 7 (1): 10. 1981. Typus: *Sympa riograndensis* Ravenna, p.p.

Flowers fugacious, conspicuous, with a deep central depression. Tepals mostly free, deeply clawed towards the base; outer tepals distinctly larger than the inner tepals; claws narrowly cuneate, ascending-erect; blades ascending, then revolute in its distal half. Inner tepals with ascending-erect and linear claws; claws with glandular trichomes scattered; blades nearly rhombic in

shape, with a carpet of one-celled lipidic trichomes in a central stripe, apex revolute, uncinated at top. Androecium columnar, with the stamens hiding the style. Stamens columnar, filaments adnate in a bottle-shaped column, above twice as long as anthers; anthers erect, adnate, oblong with narrow connective, dehiscence longitudinal, which initiates the opening near at the apex; darker thecae; pollen cyan. Ovary slightly angled, claviform, trilocular, pluriovulate. Style filiform, pinkish, translucent; style branches short, slightly dilated in a stigmatic portion at the apex, Capsule obovate-clavate, angled, with thickened walls, opening through an apical fissure. Seeds reddish brown, obconical or triangular, epidermis minutely faveolate.

Plants herbaceous, bulbous, with fibrous roots and nearly globose or depressed-globose bulbs; cataphylls papery, the outermost darker, the innermost white-cream. Leaves plicate, flaccid. Spathes pudunculates, two-flowered, two-valved, the outer one smaller than the inner one, both plicate in cross section.

A single species endemic in the Pampean Phytogeographyc region (sensu Cabrera & Willink 1980), which correspond to the region of *Campos* of the *Pastizales del Río de La Plata* (sensu Soriano *et al.* 1992) in western, central and southeastern Rio Grande do Sul state, Brazil.

Etymology— The generic name comes from the Greek, Κελισ, meaning "splattered with ink", a clear evidence of the purple spots scattered on the outer tepals of the only species of the genus.

Kelissa brasiliensis (Baker) Ravenna, Adansonia 1 (1): 106. 1981. ≡ *Herbertia brasiliensis* Baker, Journal of the Linnean Society, London 16 (89): 134. 1877. ≡ *Alophia brasiliensis* (Baker) Kuntze, Revisio Generum Plantarum 3 (2): 304. 1898. ≡ *Trifurcia brasiliensis* (Baker) Goldblatt, Brittonia 27 (4): 384. 1975. ≡ *Cypella brasiliensis* (Baker) Roitman & A. Castillo, Darwiniana, 45 (2): 238. 2007. ≡ *Herbertia Drummondiana* Klatt (non Herbert), Linnaea 31: 555. 1862. Typus: BRAZIL. "Brasilia meridionalis leg. Sellow no. 1370 et 2863". Lectotypus (designated by Ravenna 1981: 106)**:** BRAZIL. Rio Grande do Sul: Porto Alegre/ Encruzilhada do Sul: "Brasilia meridionalis" September/October 1825, *F. Sellow 2863* (lectotypus B10 0248998 image seen! [mixed with *Herbertia pulchella*], isolectotypi G00098265 image seen! G00098266 image seen!). Figures 1, 2, 3 and 4.

= *Sympa riograndensis* Ravenna, Wrightia 7 (1): 11. 1981. Typus: BRAZIL. Rio Grande do Sul: São Gabriel "17 km. W de Sao Gabriel, campo com baixada umida" 13 October 1971, *J. C. Lindman et al.* [p.p.] (holotypus ICN08345! [mixed with *Herbertia Darwinii*]).

Geophyte up to 6–15 cm high above the soil, underground stem up to 2–4 cm long. Bulb nearly globose or depressed-globose, 10–20 × 10–22 mm, prolonged in a collar up to 2–3 cm; cataphylls papery, ovate or lanceolate-ovate, the outermost dark-brown. Basal leaves at anthesis 0–5; blades linear-elliptic to lanceolate-elliptic, 6–18 × 0.6–1.3 cm. Flowering stem cylindrical, slightly winding, proximally foliose, up to 8 cm long, 2–4-branched Caulinar leaf lanceolate-elliptic, 3.5–8 × 0.5–1 cm, with up to ½ of total length concealing the peduncles of spathes. Spathes 2–4 per branch, fusiform, 4–5.5 × 0.6–0.7 cm, herbaceous, green or pallid-green, two-valved, two-flowered, pedunculate, peduncles 0.8–2.5 cm long; lower valve 3.2–4.2 cm, the upper 4–5.4 cm, both with membranous edges, at apex reddish-brown or brown, with purple parallel veins; pedicel filiform, 4–5.5 cm long. Flowers predominately violet-blue with purples spots; radially symmetrical 32–50 mm diameter, central concavity 22–30 mm diameter and 20–25 mm deep. Outer tepals broadly spathulate, 32–44 mm long, at the base concave for 20–25 mm; blades 22–30 × 16–22 mm, nearly circular in shape, ascending-erect then recurved, violet-blue or violet, splattered with reddish-brow, reddish-purple or dark-violet spots, apex rounded, apiculate, base with color becoming faded, then yellowish, with reddish-brown irregular stripes; claws narrowly cuneate, 9–12 mm long, 1.8–2 mm wide near at base and 2.5–3 mm wide near at apex, whitish or yellowish, with irregular reddish-brown stripes and spots, glandular trichomes scattered. Inner tepals arcuate-recurved, 13–16 mm long, the proximal 2/3 ascendant, then curved at top and reflex distally, ending in a obtuse and uncinate; blades 5–7 mm wide, pallid white-cream, with red or reddish-brown irregular spots, central portion with a carpet of one-celled lipidic trichomes, hyaline and bright, both margins higher and with a yellow macula surrounded by several minutely red or reddish-brown spots; claws nearly linear, 7.5–9.5 mm long, 1–1.2 mm wide near at base and 1.2–1.6 mm wide near at apex, pallid white-cream, with several reddish brown dots and stripes. Staminal filaments adnate in a bottle

Figure 1. *Kelisa brasiliensis*. A. Habit. B. Flower, upper view. C. Flower and spathe, lateral view D. Flower, with tepals removed, showing androecium at the beginning of the anthesis. E. Pistile. F. Inner tepal, frontal and lateral view. G. Apex of androecium, showing anthers at beginning of the anthesis. H. apex of pistile, showing the style branches and stigmatic area. I. Capsule.J. Seed. Scale bar near from I and K.

shaped column, 6.5–9 mm long, 1–1.3 mm wide at the base and 0.7–0.8 mm wide at the apex, greenish-cream or white-cream, slightly thickened at the base, with purplish spots; anthers adnate, oblong, 4–4.8 × 1–1.4 mm, dehiscence by a longitudinal slit that initiates the opening near at the apex; connective white-cream, 0.3–0.4 mm wide, thecae darker, pollen cyan. Ovary slightly angled, claviform, 5.5–8 × 2–3 mm. Style filiform, pinkish-white, translucent, 12–14 mm long; style branches few developed, adnate at the base for 0.2–0.3 mm and free apically for 0.1–0.3 mm, pinkish, slightly dilated in a stigmatic portion at the apex. Capsule obovate-clavate, 9–12.5 × 6–7 mm, slightly angled, with thickened walls, opening through an apical fissure. Seeds reddish brown, obconical or triangular, 1.5–2 mm, epidermis seemingly smooth or folded, minutely faveolate.

Etymology— The specific epithet *brasiliensis* refers to the place where the type material was collected, the Brazilian territory. Initially the taxon was linked to a North American species.

Material examined— BRAZIL. Without specific place, "Brasilia meridionalis" September/October 1825, *F. Sellow 1370* (B10 0248999 image seen!); without specific place and date, Brasilia australis, *F. Sellow s.n.* ["Brésil, Province de Rio-Grande C. Gaudichaud 295 et 309] (P01772550, P01772605); Brasilia, *F. Sellow s.n.* (P02065182, P02065183). Rio Grande do Sul: Aceguá, BR153, logo após a ponte do rio Negro, 31 October 2008, *L.P. Deble et al. 8712* (PACA). Amaral Ferrador, Fazenda da Pinheira, 11 Ocotober 2014, *T. Pastori & C. Forgiarini 109* (ICN); estrada secundária de Encruzilhada do Sul para Amaral Ferrador, 3 December 2015, *L. Eggers & O. Chauveau 955* (ICN). Arroio dos Ratos, Granja Faxinal, 29 October 1974, *K. Hagelund 8134* (ICN); idem, 21 September 1975, *K. Hagelund 9335* (ICN); idem 18 October 1975, *K. Hagelund 9450* (ICN); idem, 29 September 1977, *K. Hagelund 11623* (ICN); estrada Arroio dos Ratos Guaíba, 11 October 1975, *B. Irgang s.n.* (ICN29544); estrada secundária em direção à fazenda Faxinal a partir da BR290, 25 October 2013, *C.D. Inácio et al.* 137 (ICN). Bagé, 26 October 1955, *A. Schultz 1186* (ICN); BR 153, Km 564, 19 November 2012, *L. Eggers & al. 772* (ICN); estrada entre Bagé e Lavras do Sul, Fazenda Umbelina, 10 November 2014, *T. Pastori et al. 161* (ICN). Caçapava do Sul, Minas de Camaquã, Pedra da Cruz, 8 November 2016, *M. Báez 220* (ICN); estrada acesso Guaritas, ap. 1km BR153, 1 October 2009, *L. Eggers & T.T. Souza-Chies 467* (ICN); Guaritas, 23 December 2012, *T.L. Stiehl-Alves s.n.* (ICN180245); idem, 24 November 2011, *T.L. Stiehl-Alves s.n.* (ICN180244); 14 October 2017, *A.M. Cristiane & al. s.n.* (ICN200591); idem 27 October 2017, *A.M. Cristiane & al. s.n.* (ICN200593); Fazenda da Taleira, 21 November 1986, *C.M. Frizzo et al. s.n.* (UCS2041); caminho gruta do Segredo, *G. Pabst & E. Pereira 6448* (HB); Entrada da Pedra do Segredo, 5 November 2014, *T. Pastori et al. 152* (ICN). Cachoeira do Sul, BR 290, 200 km de Porto Alegre, 3 October 1971, J.C. *Lindeman et al. s.n.* (ICN008300). Canguçú, BR392, entre KM 150-152, na ponte, 31 October 2013, *E.M. Stiehl-Alves et al. 66* (ICN). Cristal, 3 November 2011, *T.L. Stiehl-Alves s.n.* (ICN180243); Estrada Cristal-Amaral Ferrador, RS 354, 3 November 2011, *L. Eggers & T.T. Souza-Chies 670* (ICN). Dom Pedrito, Tacuarembozinho, 2 November 2010, *L.P. Deble et al. 10554* (PACA); Ferraria, 16 October 2019, *L.P. Deble et al. 19425* (PACA); Serrinha, November 2020, *L.P. Deble & B.P. Moreira 19855* (PACA). Encruzilhada do Sul, RS471, 26 November 2003, *L. Eggers & T.T. Souza-Chies 27* (ICN); Fazenda Xafri, Coxiha do Eucalipto, 3 October 2004, *C.M. Barroso & G.N. Klein s.n.* (ICN143625); idem 8 November 2008, *L. Eggers & T.T. Souza-Chies* 420 (ICN), idem, Serra das Encantadas, 14 November 2005, *V.F. Kinupp & C.M. Bührnheim 3043* (ICN); Cerro Partido, Propriedade do Sr. Aldroaldo, 12 October 2014, *T. Pastori & C. Forgiarini 113* (ICN); 1 December 2012, *M. Verdi & J.A. Jarenkow 6279* (FURB); póximo a Fazenda Quero-Quero, 1 November 2013, *E.M. Stiehl-Alves et al. 85* (ICN); BR 471, direção a BR 392, 3 December 2015, *L. Eggers & O. Chauveau 957* (ICN). Jari, propriedade do Sr. Cardoso, November 2013, *L.P. Deble & J.N.C. Marchiori 12744* (HDCF). Júlio de Castilhos, "ruta de Santa Maria a Julio de Castilhos, manchas flores azul-violáceas con manchas oscuras" 2 novembro 1962, *B. Rosengurt & Del Puerto 8757* (MVFA). Lavras do Sul, Fazenda do Posto, 12 km E de Lavas do Sul, flor azul, o centro pintado diaspos. L 71. 34, 35, 17 October 1971, *J.C. Lindeman & B.E. Irgang s.n.* (ICN8665); RS 357, em direção a Lavras do Sul, após bifurcação para São Gabriel, 20 November 2012, *L. Eggers & al. 777* (ICN); entre Lavras e Caçapava km 100 flores azul-violáceas con manchas oscuras 1 November 1962, *B. Rosengurt & Del Puerto 8695* (MVFA). Manoel Viana, estrada secundária entre Manoel Viana e São Francisco de Assis, 15 November 2013, *E.M. Stiehl-Alves et al. 102* (ICN). Porto Alegre, Mont Serrat, 30 Ocotober 1937, *A. Schultz 318* (ICN). Pinheiro Machado [Candiota], Pedra de Torrinhas, 11 November 2014, *T. Pastori et al. 164* (ICN). Piratini, estrada secundária depois do Cancelão e antes de Capela, 21 November 2008, *L. Eggers & T.T. Souza-Chies 445* (ICN). Rosário do Sul, 8 km E de Rosário BR 290, km 377, 13 October 1971, *J.C. Lindeman et al. s.n.* (ICN8393). Santana da Boa Vista, BR 153, sentido Bagé, grande afloramento rochooso à Oeste, 27 October 2018, *A.M. Cristiane 04* (ICN200584); Cerro do Diogo, September 1985, *M. Sobral et al. 4274* (HDCF, ICN); estrada para Minas de Camaquã, cerca de 3 km do trevo de acesso, 31 October 2013, *E.M. Stiehl-Alves et al. 68* (ICN); estrada secundária Santana da Boa Vista-Encruzilhada do Sul, cerca de 1km da BR392, 1 November 2013, *E.M. Stiehl-Alves et al. 71* (ICN). Santana do Livramento, BR 293, Km 296, 4 November 2010, *E.M. Stiehl-Alves 6* (ICN180242). Santiago, caminho Itacurubi, 17 November 2018, *L.P. Deble & R.C. Pontes 18807* (PACA). São Pedro do Sul, BR287, ap. KM 299, 16 October 2014, *T. Pastori et al. 145* (ICN). São Sepé, 5 November 2011, *T.L.S. Alves 245* (ICN). São Vicente do Sul, Cerro da Glória, 25 October 2014, *L.P. Deble et al. 15029* (PACA). Tapes, Fazenda São Miguel, campo nativa, ecossistema de butiazal, 31 Ocotober 2011, *M.M. Marchi & I. Goulart 3102* (ECT); idem, 15 October 2012, *M.M. Marchi & M. Magalhães 3822* (ECT).

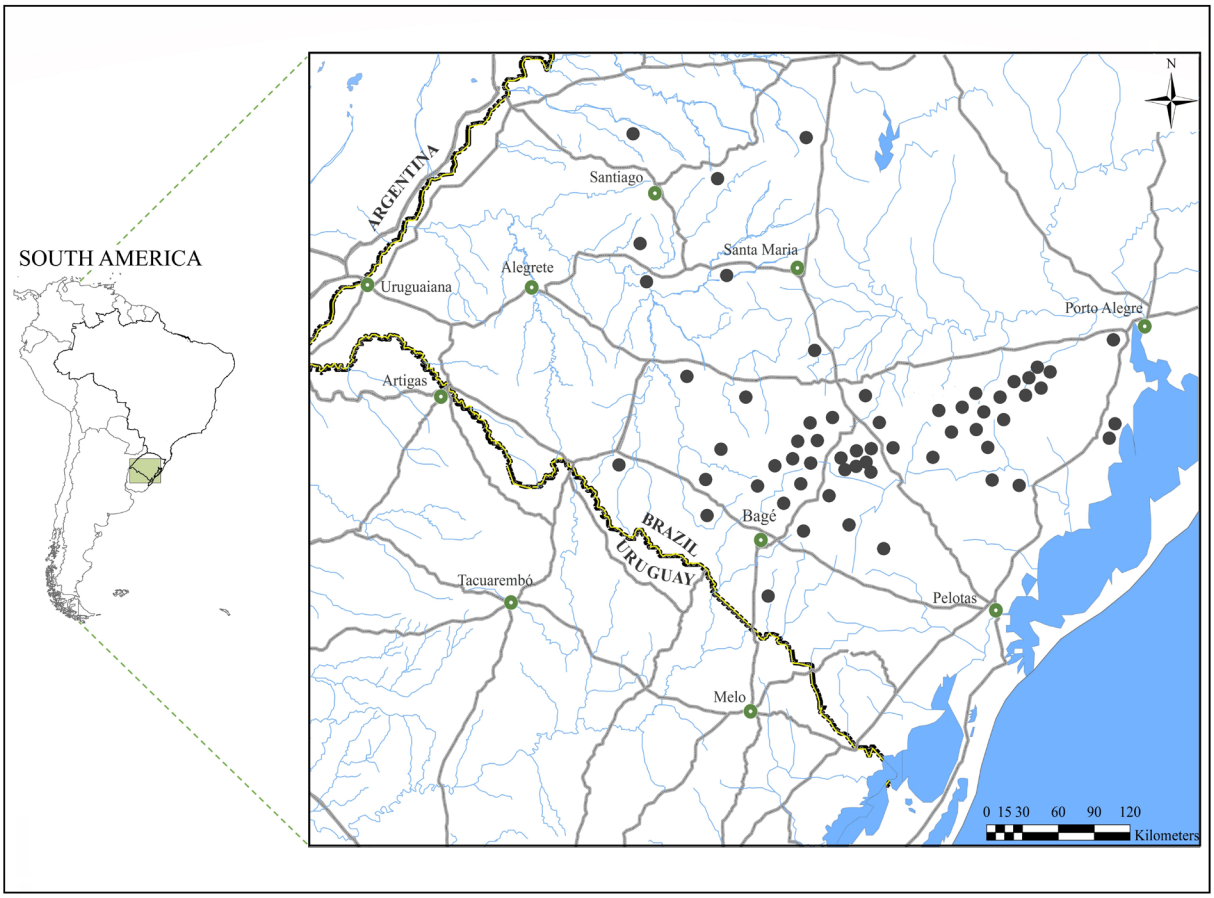

Figure 2. Geographic distribution of *Kelissa brasiliensis* (gray circles).

Vernacular names and uses— bibi, flor-de-pinico, ruibarbo-do-campo (*A. Schultz 318*), ruibarbo--pintado (*M. Sobral et al. 4274*). The bulbs are used raw and cooked, they have a pleasant almond flavor. The leaves are appreciated by cattle and others herbivorous. The species is easily cultivated and has ornamental potential; however, it is rarely used for this purpose.

Geographic distribution and habitat— *Kelissa brasiliensis* is a rather frequent species in the physiographic regions of Serra do Sudeste, and eastern portion of Campanha, in the southeastern state of Rio Grande do Sul (RS), being one of the most common species of Iridaceae-Tigridieae in these areas. The species prospers in mountainous areas covered by natural grasslands and heliophile shrub associations, known locally as Vassourais (designation according to Marchiori 2004). The species also occurs in natural grasslands in the center and west of the state of RS, where it is, however, a rare species. *Kelissa brasiliensis* occurs preferentially in shallow soils, developed over different types of rocks, but mainly over granites, metamorphic rocks and sedimentary rocks from ancient geological formations in the southeast of the state. In the center-west of RS the species was observed in sandy soils of the Botucatú formation and in the west of RS, *Kelissa brasiliensis* occurs in shallow soils developed on basalt. Based on inventoried data and several trips to identify and analyze populations in the field, it can be seen that the southern limit of occurrence of *Kelissa brasiliensis* is in the north of the municipality of Aceguá, about 30 km from the border with Uruguay, from this region, the species extends its geographic distribution in a strip parallel to the border between Brazil and Uruguay, where its populations become gradually more spaced and rare and reach its western limit of distribution in the southeast of the municipality of Santana do Livramento, very close to the border line between Brazil and Uruguay. After exhaustive collection excursions, the species, however, was not found in Uruguayan territory.

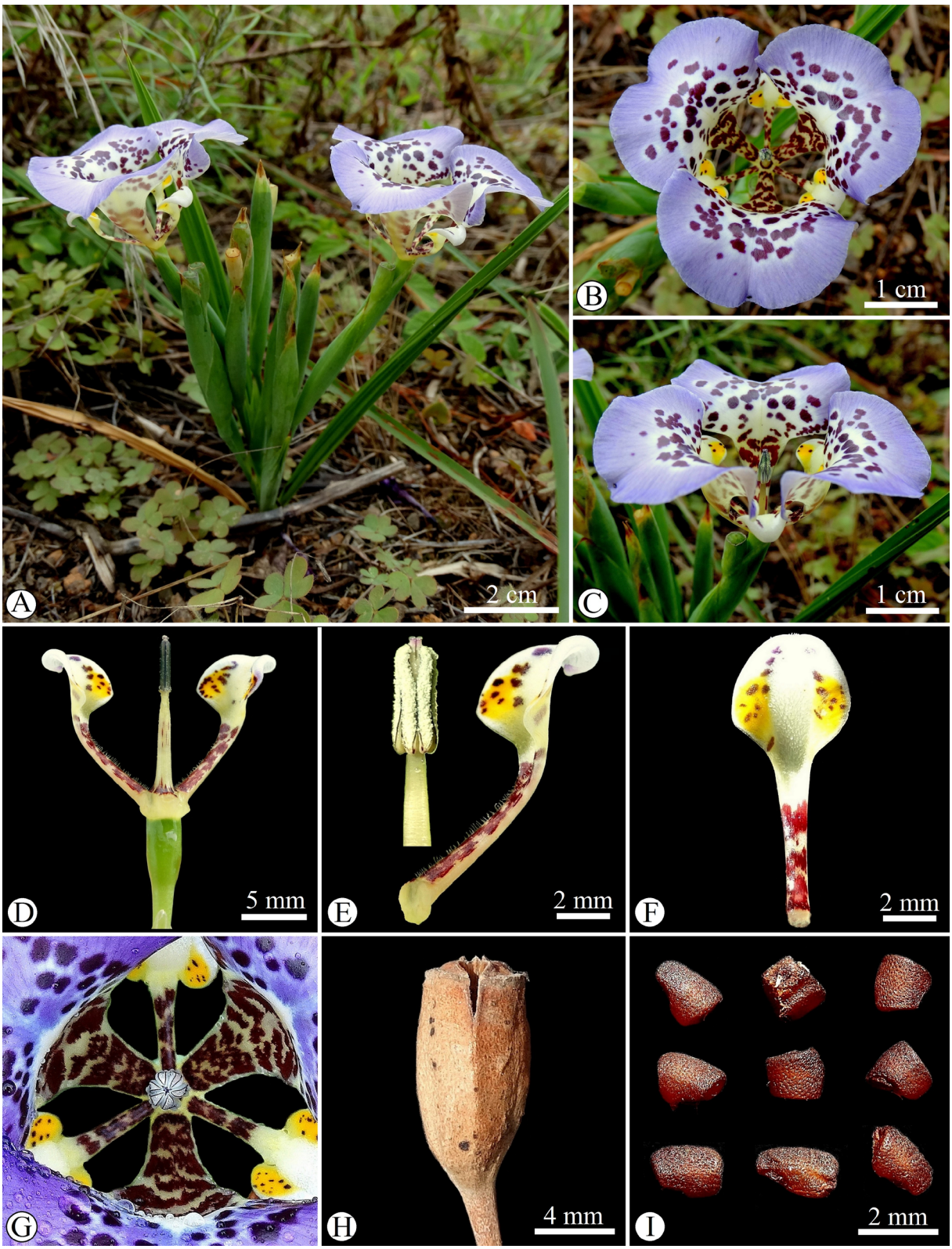

Figure 3. *Kelissa brasiliensis*. A. Habit. B. Flower, upper view. C. Flower, lateral view D. Flower, showing androecium at the end of the anthesis, and two inner tepals. E. Inner tepal, lateral view and apex of androecium in full anthesis. F. Inner tepal, frontal view. G. Flower, upper view, showing the androecium, inner tepals and claws of outer tepals. H. Capsule. I. Seeds.

Figure 4. Different patterns of perigone color and shape found in *Kelissa brasiliensis*. A. From Aceguá. B. From Bagé. C. From Dom Pedrito. D. From Santa Margarida do Sul. E. From Cristal. F. From São Gabriel. G. From São Vicente do Sul. H. From Santiago. I. From Lavras do Sul. J. From Jari. K from Encruzilhada do Sul. L. From Pantano Grande. Scale bar in L from A–L.

Ecology, population size and natural history— *Kelissa brasiliensis* is a species typical of grasslands, shrub associations and valleys, in mountainous environments in southeastern Rio Grande do Sul state, being its possible center of dispersion. In these places, some populations may contain more than 100 specimens, which produce abundant fruits and seeds. However, populations found in other regions of RS contain few individuals. The species blooms intensely between September and November, being able to bloom sporadically in the months of August and December. Fruiting occurs from the end of September and extends until December. The flowers open only once, in the middle of the morning and wither in the middle of the afternoon, on cloudy days the flowers can remain open until the end of the afternoon. Floral visitors were observed, mainly flies of the Syrphidae family and bees (Meloponinae). The difficulty of producing viable fruits in cultivated material suggests that *Kelissa brasiliensis* has specific pollinators.

Conservation— *Kelissa brasiliensis* has an estimated geographic distribution over than 85,000 km^2, its populations are generally numerous and contain dozens of individuals. *Kelissa brasiliensis* is the most common bulbous Iridaceae in Serra do Sudeste physiographic region, mainly in the area that includes the municipalities of Bagé, Caçapava do Sul, Encruzilhada do Sul, Lavras do Sul and Santana da Boa Vista. The species was listed in the Vulnerable category (Decreto Lei 52109/2014). However, based on its geographic distribution, its area of occurrence and its number of known populations, the species does not fall into the category of threat. However, as the environments where the species occurs are suffering strong anthropic influence, mainly due to the suppression of grassland areas for agricultural monocultures, silviculture and mining, it is prudent to recognize *Kelissa brasiliensis* as Near threatened (NT), as recommended by the IUCN (2019).

Discussion— The habit of *Kelissa* is similar to that found in most species of *Herbertia*, *Onira unguiculata*, *Cypella Hauthalii* and *C. opalina*, due to its globose or depressed-globose bulbs, its flaccid leaves and its 2-flowered spathes, with unequal valves: external are plicate and smaller and the internal valves are convoluted and longer. The perigone of *Kelissa brasiliensis* is rather similar to *Onira unguiculata* and *Cypella opalina*, due its deep central depression, which gives the tepals an almost urceolate shape in lateral view, and by its long claws. The taxonomic relationships of *Kelissa* with other genera are not clearly defined, but morphologically the genus resembles *Onira* in several aspects, such as habit, shape and texture of leaves, spathes size and shape, and perigone shape. However, the flowers of *Kelissa brasiliensis* are quite unique and easily separated from *Onira* and other genera due to the characteristics of Androecium. In *Kelissa*, the stamens have filaments adnate in a narrow bottle-shaped column, which is about twice as long as the anthers, the anthers are erect and have adnate thecae, which opening from a longitudinal fissure, and the anthesis is from top to bottom. The style, in its turn, is columnar and almost completely hidden by the stamens, with only the stigmatic area being visible, which is positioned slightly above the height of the anthers.

Key to distinguish the South American genera of Iridaceae-Tigridieae

1. Outer and inner tepals equal or subequal in size (rare inner tepals with ca. of ½ of total length of the outer tepals; so the blades are of the same color, texture and glabrous). One-celled lipidic trichomes absent …. 2
– Inner tepals much smaller than the outer tepals. Blade of the inner tepals with a carpet of one-celled lipidic trichomes, rarely absent ….5
2. Plants robust, leaves rigid with fiber bundles with lignin on the margins and in the most caliber veins. Spathes 3–12-flora. Bulbous with cataphylls fleshy, reddish-yellow, reddish-brown or purplish-brown in fresh 3
– Plants delicate, leaves tender without fiber bundles with lignin. Spathes 1–2 (5)-flora. Bulbous with cataphylls papery, pallid-brow or dark-brow 4
3. Style columnar, shortly trifid apically; stigmatic region one for each branch, transversely reniform in shape .... *Gelasine* p.p.
– Style trifid at apex, with secondaries division deeply bifid and subulate; stigmatic region two for each branch .... *Eleutherine*
4. Stamens with anthers adnate towards the base, its distal half thrown back at the dehiscence. Style columnar, at apex shortly trifid, with branches erect .... *Itysa* Ravenna

– Stamens with anthers free, curved or twisted at the dehiscence. Style often trifid at apex, with branches patent or ascendant (rarely with branches adnate, forming a columnar style: *Calydorea charruana* and *C. nuda*) .... *Calydorea* Herbert (including *Tamia* Ravenna)

5. Style branches filiform, ending in a short stigmatic portion at top 6

– Style branches plicate, thicker than the style, stigmatic region two for each branch 9

6. Central concavity of perigone shallow or deep. Outer and inner tepals with claws few pronounced. Inner tepals with one-celled lipidic trichomes absent or few, scattered on the claw 7

– Central concavity of perigone deep. Outer and inner tepals markedly clawed. Inner tepals with a dense carpet of one-celled lipidic trichomes on a central stripe of the blade 8

7. Inner tepals geniculate recurved. Stamens with filaments shortly adnate towards the base, anthers horizontal or patent. Style branches horizontal or patent, emarginated at top ..... *Catila* Ravenna

– Inner tepals elliptic, oblanceolate or cucullate. Stamens with filaments adnate in a column, anthers erect. Style columnar or shortly trifid apically; stigmatic region transversely reniform in shape ..... *Gelasine* p.p.

8. Style columnar, hidden by the stamens; stamens with adnate filaments, forming a column, anthers adnate to each other .... *Kelissa* Ravenna

– Style deeply trifid, visible among the stamens; stamens with free filaments ..... *Onira* Ravenna

9. Inner tepals with long and abundant glandular trichomes on the blade 9

– Inner tepals without long glandular trichomes (or if present, few and scattered along the claws). One-celled lipidic trichomes forming dense carpets in specific parts of the blade, rarely absent 10

9. Flowers opening in the middle or late afternoon. Inner tepal blade with long glandular trichomes in a central stripe along the top. Style branches ending in three crests, two adaxial and one abaxial, crests not petaloid ..... *Hesperoxiphion* Baker

– Flowers opening in the morning. Inner tepal blade with glandular trichomes in two lateral bands along the top. Style branches ending in two rounded and petaloid crests ..... *Phalocallis* Herbert

10 Stamens with filaments adnate in a cylindric or bottle shaped column. Style branches with secondary divisions emarginated or bifid, ending in a nearly spherical stigmatic portion 11

– Stamens free, partially adnate or adnate in a conical column. Style branches with secondary divisions rounded, peltate or crested 15

11 Unbranched part of style with ⅔ or more of total length of style; style branches shorter, ending in an emarginated stigmatic portion ..... *Lethia*

– Unbranched part of style with up to ½ of total length of style, rarely more; style branches well-developed 12

12. Style branches with secondary divisions subulate, deeply bifid for ⅔ or more of total length of the style branch 13

– Style branches with secondary divisions emarginated or bifid for up to ½ of total length of the style branch 14

13. Stamens with anthers horizontal or patent (rarely ascending or erect in North America species: *Tigridia imaculata; T. inusitata; T. orthanta; T. pavonia*). Style-branches horizontal or patent ..... *Tigridia*

– Stamens with erect anthers; Style branches with secondary divisions ascending-erect or erect, above the anthers .... *Alophia* Herbert

14. Inner tepals with a central concavity darker and densely covered by one-celled lipidic trichomes ..... *Herbertia* Sweet

- Inner tepals smooth, without one-celled lipidic trichomes ..... *Mastigostyla* Johnston (including *Cardenanthus* Foster)

15. Stamens with filaments entirely adnate in a conical column, longer than the anthers. Style-branches peltate with fimbriate margins; stigmatic portion along the margins ..... *Ennealophus*

– stamens with filaments free, partially adnate or adnate, of equal length or shorter than the anthers. Style-branches crested or rounded, stigmatic portion in a transverse dorsal stripe or in two lateral ear-like appendices 16

16. Spathes with two plicate valves, subequal in length. Anthers with connective prolonged and apically firm attached to the style arms. Style branches with two crests ..... *Larentia* Klatt

– Spathes with two convolute valves, with outer valve having ca. ½ or up to ⅔ of total length of the inner valve. Anthers with connective not prolonged. Style branches with three crests, two adaxial and one abaxial, sometime reduced 17

17. Cauline leaf subapical inserted at the base of subterminal inflorescence. Inflorescence fasciculate. Inner tepals erect, forming a cup (rarely inner tepals arcuate-recurved: *Cipura formosa*, *C.. xanthomelas*) ..... *Cipura*

– Cauline leaf in the basal third. Inflorescence supported by peduncles, non-fasciculate (fasciculate only in *C. gloriana* and *C. pusilla*, so the leaf inserted at the base of the inflorescence is bracteiform and of equal length or smaller than the spathes.) .... *Cypella*

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