



## *Eugenia reperta* (Myrtaceae), a new species from Minas Gerais, Brazil

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*Eugenia* P.Micheli ex Linnaeus (1753: 740) is a pantropical genus with 1,220 species (Govaerts *et al.* 2022) represented in Brazil by 407 recognized species, from which 98 are recorded from the state of Minas Gerais (Mazine *et al.* 2022). Along extensive examination of *Eugenia* collections from this state, we spotted an unidentified species which we consider as new to science. This study presents its morphological description along with notes on taxonomy, distribution and conservation.

Specimens examined are kept in the herbaria cited in the text (acronyms follow Thiers 2021); terms used in the description largely follow standard glossaries (e.g. Gonçalves & Lorenzi 2011, Harris & Harris 2001); measurements are in the order length × width (or diameter for flower buds and fruits); when a single set of measures is cited, it refers to length except otherwise stated. The generic concept of *Eugenia* follows that described in Mazine *et al.* (2022); the species proposed as new is interpreted so according to the morphological species concept (McDade 1995). Conservation issues follow IUCN guidelines (IUCN 2022).

### Taxonomy

*Eugenia reperta* Sobral & Mazine, *sp. nov.* Type:—BRAZIL, Minas Gerais, mun. Santana do Paraíso, locality of Achado, 19°21'35.7" S, 42°36'17.6" W, 23 December 2011, *M. Sobral 14577* (holotype RB!, isotypes HUFSJ!, SORO!). Figures 1–2.

Diagnosis:—This species is morphologically related to *Eugenia umbrosa* O.Berg (for description see Berg 1857–1859: 582 or Mazine *et al.* 2022; type images LE 00007526, P 01902719), from which it is kept apart through its inflorescences with imbricate bracts to 10 mm (vs. bracts to 5 mm, not imbricate), bracteoles to 9 mm, basally connate (vs. up to 3 mm, free from each other), flower buds uniformly covered with grey trichomes (vs. flower buds with ovary visibly more pilose than the sepals, the trichomes brown) and fruits to 100 mm (vs. up to 30 mm) with 10 or more seeds (vs. up to 4-seeded).

Description:—Tree 4–10 m, with grey, longitudinally rugose cortex. Twigs slightly applanate, with simple grey or brown trichomes to 0.8 mm, the internodes 8–18 × 4–5 mm. Leaves with petioles 3–5.5 × 2–3 mm, with trichomes as the twigs, adaxially canaliculate, sometimes abaxially transversely wrinkled or cracked; blades elliptic, narrowly elliptic, oblong or obovate, 160–200 × 62–75 mm, 2–3 times longer than wide, discolorous when dry, dull green adaxially and light brown abaxially, the adaxial face glabrous and markedly bullate, the abaxial face, except for the veins, with uniformly scattered simple erect trichomes 0.7–1 mm, veins more densely pilose and strongly prominent; glandular dots of two sizes, the larger ones about 0.1 mm and the smaller ones about 0.05 mm in diameter, 15–30 per mm<sup>2</sup>; apex acute to widely acuminate; base widely acute; midvein markedly sulcate adaxially and strongly prominent abaxially; lateral veins 17–20 at each side, leaving the midvein at angles 45–60 degrees, markedly sulcate adaxially and prominent abaxially, with secondary lateral veins visible and slightly smaller in gauge; intramarginal veins two, the inner one 4–5 mm, the outer one 1–2 mm from the margin. Inflorescences ramiflorous, umbelliform or racemiform, then with the axis 3–10 × 2 mm with internodes 1–3 mm, covered with simple grey trichomes to 0.3 mm, with 4–8 flowers, the base bearing a series of densely imbricate bracts, the proximal ones triangular, up to 4 × 2 mm, the distal ones linear, to 10 × 3 mm, crenate, with simple white trichomes to 0.3 mm along the carena; pedicels 2–6 × 1.2–2 mm, with trichomes as the axis; bracteoles widely triangular, 6–9 × 7–8 mm, basally connate, densely covered on both sides with grey simple trichomes 0.2–0.3 mm; flower buds uniformly pilose as the

bracteoles, globose or obovate, to  $16 \times 12$  mm; sepals four, uniformly pilose on both sides, unequal, the outer ones widely triangular,  $8-9 \times 11-12$  mm, the inner ones elliptic,  $12-14 \times 12$  mm; petals four, white, obovate or rounded, mostly glabrous or ciliate,  $16-18 \times 15-16$  mm; stamens about 200, to 15 mm, the anthers oblong, to  $1 \times 0.4$  mm, eglandular; staminal ring 7–8 mm in diameter, sometimes slightly subquadrate, with trichomes to 0.3 mm; style 13–15 mm, with white trichomes to 0.5 mm along the proximal half, the stigma punctiform; ovary with two internally glabrous locules and ca. 30 ovules per locule. Fruits withered/shriveled, collected in the ground, subglobose or ellipsoid, minutely pilose,  $80-100 \times 70-80$  mm, sometimes with four more or less visible longitudinal ridges, with 10–13 seeds, these elliptic to prismatic, with brown testa and embryo with cotyledons completely fused and no visible hypocotyl.

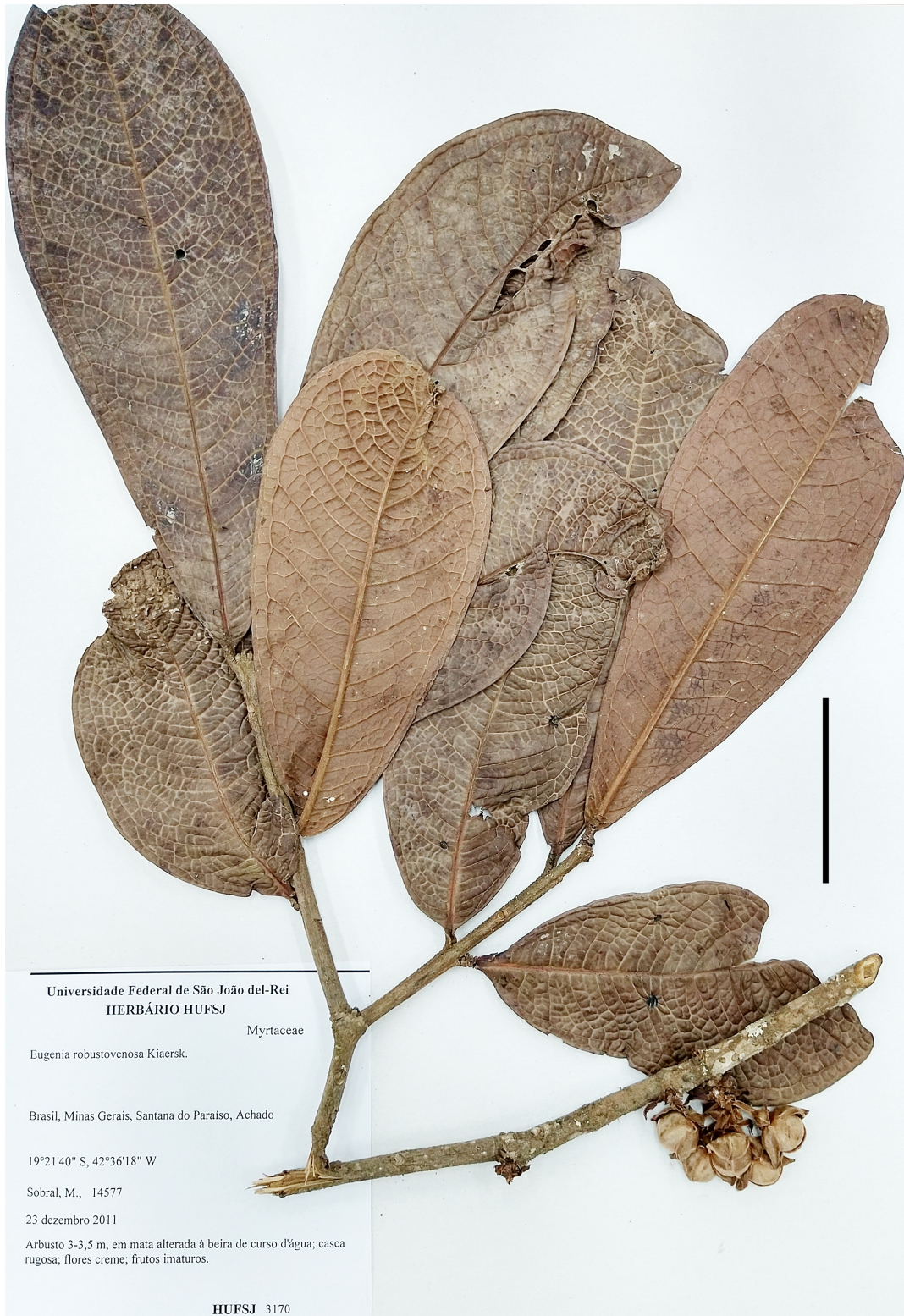
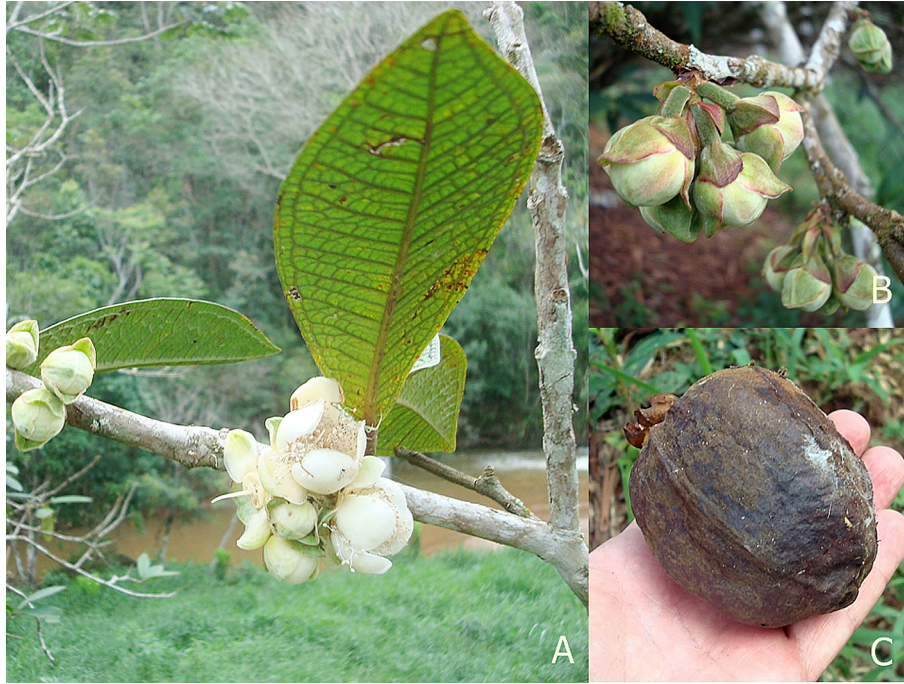


FIGURE 1. *Eugenia reperta*. Holotype (scale: 50 mm).





**FIGURE 2.** *Eugenia reperta*: A) flowering branch; B) inflorescences; C) withered fruit (all from Sobral 14577, photos by M. Sobral).

Distribution, habitat, phenology:—This species is presently known from two collections from rainforest remnants about 250 m elev. at the municipality of Santana do Paraíso, located in the basin of Rio Doce, a river in the eastern portion of the state of Minas Gerais; flowers and fruits were collected in January and December.

Conservation status:—The municipality of Santana do Paraíso encompasses an area of 276 km<sup>2</sup> (IBGE 2021), from which there are recorded 117 plant collections (speciesLink 2022), resulting in an average of 0.42 collection/km<sup>2</sup>, a very limited sampling effort (see Sobral & Stehmann 2009). Although only two specimens are preserved in herbaria, this may not be an indicative of its rarity, since many individuals were observed occurring scattered along forest remnants from this municipality (Melo, personal observation), corroborating the possibility of sampling insufficiency. Considering this, we propose that *Eugenia reperta* should be scored as DD (Data Deficient) according to IUCN conservation criteria (IUCN 2022: 80). A future reassessment is desirable, since DD status “does not imply that a taxon is not threatened” (IUCN 2022: 80).

Affinities:—This species is morphologically related to the Brazilian *Eugenia umbrosa*, under which name the two presently known collections were initially identified in herbaria (under the name *Eugenia robustovenosa* Kiaerskou [1893: 137; type image K 000276686], a nomenclatural synonym according to Govaerts *et al.* [2022] and Mazine *et al.* [2022]), a species widespread in southeastern and northeastern Atlantic rainforests, with which it is compared in the diagnosis. *Eugenia reperta* presents inflorescences which are either umbelliform or racemiform, in this case with pedicels 2–5 times longer than the internodes; these features are stated by Mazine *et al.* (2016) as characteristic of *Eugenia* section *Umbellatae* O.Berg (1855–1856: 204), the same section where *E. umbrosa* is nested (Mazine *et al.* 2018: 757).

There are some singular features in *Eugenia reperta* that should be highlighted here. One of them is the size of the fruit (over 100 mm long), being probably one of the species with the largest fruits in the genus. Another feature is the large amount of seeds per fruit—10 seeds or more—while most species of the genus present usually 1 or 2 seeds. In addition, bullate leaves also draw attention to this plant. Such features can help in the identification of the species.

Etymology:—The epithet is derived from the Latin word for “found”, alluding to the locality of Achado (“found”, in Portuguese), where the species was collected until now.

Paratype:—BRAZIL. Minas Gerais: Santana do Paraíso, coletada em direção ao bairro Achados, em borda de estrada, 25 April 2007, R. Tsuji *et al.* 1566 (BHCB!, HPL!).

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## References

- Berg, O.C. (1855–1856) Revisio Myrtacearum Americae. *Linnaea* 27: 1–472.
- Berg, O.C. (1857–1859) Myrtaceae. In: Martius, K.F.P. von (org.) *Flora Brasiliensis* 14 (1). F. Fleischer, Leipzig. pp. 1–656.
- Gonçalves, E. & Lorenzi, H. (2011) *Morfologia vegetal*. 2 ed. São Paulo, Plantarum, 544 pp.
- Govaerts, R., Sobral, M., Ashton, P., Barrie, F., Holst, B.K., Landrum, L.R., Matsumoto, K., Mazine, F.F., Nic Lughadha, E., Proença, C., Soares-Silva, L.H., Wilson, P.G. & Lucas, E. (2021) Myrtaceae. In: *World Checklist of Selected Plant Families*. Available from: <http://wmsp.science.kew.org/home.do> (accessed 12 February 2021).
- IBGE (Instituto Brasileiro de Geografia e Estatística) (2021) *IBGE cidades*. Available from: <https://cidades.ibge.gov.br/brasil/sc/panorama> (accessed 14 February 2021).
- Harris, J.G. & Harris, M.W. (2001) *Plant identification terminology: an illustrated glossary*. 2 ed. Spring Lake Publishing, Spring Lake, 206 pp.
- IUCN (International Union for the Conservation of Nature and Natural Resources) (2022) *Guidelines for using the IUCN Red List Categories and Criteria*. Version 15. 116 pp. Available from: <https://www.iucnredlist.org/documents/RedListGuidelines.pdf> (accessed 2 June 2022).
- Kiaerskou, H. (1893) Enumeratio Myrtacearum Brasiliensium. In: Warming, E. (ed.) *Symbolarum ad floram Brasiliae centrali cognoscendam*, v. 39. Copenhagen. 199 pp.
- Linnaeus, C. (1753) *Species Plantarum*, v. 1. Stockholm, 560 pp.
- Mazine, F.F., Büniger, M.O., Faria, J.E.Q., Lucas, E. & Souza, V.C. (2016) Sections in *Eugenia* (Myrteae, Myrtaceae): nomenclatural notes and a key. *Phytotaxa* 289: 225–236.  
<https://doi.org/10.11646/phytotaxa.289.3.2>
- Mazine, F.F., Faria, J.E.Q., Giaretta, A., Vasconcelos, T., Forest, F. & Lucas, E. (2018) Phylogeny and biogeography of the hyper-diverse genus *Eugenia* (Myrtaceae: Myrteae) with emphasis on *E.* sect. *Umbellatae*, the most unmanageable clade. *Taxon* 67: 752–769.  
<https://doi.org/10.12705/674.5>
- Mazine, F.F., Büniger, M., Faria, J.E.Q., Fernandes, T., Giaretta, A., Valdemarin, K.S., Santana, K.C., Souza, M.A.D. & Sobral, M. (2022) *Eugenia*. In: *Flora e Funga do Brasil*. Jardim Botânico do Rio de Janeiro. Available from: <https://floradobrasil.jbrj.gov.br/FB10338> (accessed 15 April 2022).
- McDade, L. (1995) Species concepts and problems in practice: insight from botanical monographs. *Systematic Botany* 20: 606–622.  
<https://doi.org/10.2307/2419813>
- Sobral, M. & Stehmann, J.R. (2009) An analysis of new angiosperm species discoveries in Brazil (1990–2006). *Taxon* 58: 227–232.  
<https://doi.org/10.1002/tax.581021>
- SpeciesLink (2022) *SpeciesLink network*. Available from: [specieslink.net/search](https://specieslink.net/search) (accessed 31 January 2022).
- Thiers, B. (2021) *Index Herbariorum. A global directory of public herbaria and associated staff*. New York Botanical Garden's Virtual Herbarium. Available from: <http://sweetgum.nybg.org/science/ih/> (accessed 5 August 2022).