

# Plagiogyriaceae Bower

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This treatment is composed of the following taxa: Plagiogyriaceae, *Plagiogyria*.

## HOW TO CITE

Vasques, D.T., Della, A.P. 2020. Plagiogyriaceae in **Flora do Brasil 2020**. Jardim Botânico do Rio de Janeiro. Available at: <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB91534>.

## DESCRIPTION

Plants terrestrial. Rhizomes erect, suberect, or shortly decumbent, thick, lacking scales and hairs. Fronds dimorphic, the fertile ones pinnate, more erect, with longer stipes, and narrower pinnae, the sterile ones pinnatisect to barely pinnate, arranged in a spiral phyllotaxy; petioles stramineous, brownish near the base, fasciculate, glabrous, their bases slightly expanded, with aerophores, generally triangular or subtriangular in cross-section, adaxially grooved; laminae rhombic, chartaceous, glabrous; rachises stramineous, glabrous; pinnae adnate or sometimes short-stalked, linear, margins serrate to 2-serrate, subopposite to opposite, gradually tapering proximally and towards the apex; veins free, simple or 1-forked. Sori elongate covering adaxial surface of fertile lamina, actually in a line along both sides of costa, without true indusia, with leaf margins recurved, protecting the sporangia when young, paraphyses lacking; annuli oblique, uninterrupted by pedicel; spores globose-tetrahedral, trilete, without chloroplasts. Gametophytes epigeal, chlorophyllous, cordate or somewhat elongate;  $x = 65, 66$ .

## COMMENTS

Plagiogyriaceae is a monogeneric family of terrestrial ferns. The family is supported as monophyletic by recent studies (PPG I, 2016), sister to the Culcitaceae family, and within the order Cyatheales. The family is represented by ca. 15 extant species, most of them distributed in Southern and Eastern Asia. In Brazil, only one species can be found, *P. fialhoi* (Fée & Glaz.) Copel., occurring in MG, SP, PR, RJ, RS, and SC, at altitudes of 1000-2400 m.

### Life Form

Herb

### Substrate

Rupicolous, Terrestrial

## DISTRIBUTION

Native, Not endemic to Brazil

### Phytogeographic Domains

Atlantic Rainforest

### Vegetation Types

High Altitude Grassland, Ombrophyllous Forest (Tropical Rain Forest)

### Geographic Distribution

Confirmed occurrences

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

## REFERENCE

- Iwatsuki, K. 1995. Plagiogyriaceae. In: Iwatsuki, K., T. Yamazaki, D. E. Boufford & H. Ohba. (eds.) Flora of Japan, v.1, Pteridophyta and Gymnospermae, Kodansha, Tokyo: 75-77.
- Lellinger, D.V. 1989. The Ferns and Fern-allies of Costa Rica, Panama, and the Chocó. Nº 2A. Pteridologia a publication of The American Ferns Society: 354.
- Lellinger, D. 1971. The American Species of Plagiogyria sect. Carinatae. American Fern Journal, 61(3): 110-118.  
doi:10.2307/1546640
- Mickel, J. T. & Smith, A. R. 2004. The Pteridophytes of Mexico. The New York Botanical Garden, 88: 1055.
- PPG I. (2016). A community-derived classification for extant lycophytes and ferns. Journal of Systematics and Evolution, 54(6): 563-603.
- Smith, A. R. 1995. Plagiogyriaceae. In: Steyermark, J. A. et al. (eds.) Flora of the Venezuelan Guayana, v. 2, Pteridophytes, Spermatophytes and Acanthaceae-Araceae: 217-219.
- Xianchun, Z. & Nooteboom, H.P. 2013. Plagiogyriaceae. In: Al-Shehbaz, I. A. et al. (eds.) Flora of China, v. 2-3, Lycopodiaceae through Polypodiaceae, Science Press (Beijing): 128-131.
- Zhang, X. C. & Nooteboom, H. P. 1998. A taxonomic revision of Plagiogyriaceae. Blumea, 43: 401-469.

# Plagiogyria (Kunze) Mett.

This treatment is composed of the following taxa: *Plagiogyria*, *Plagiogyria fialhoi*.

## HOW TO CITE

Vasques, D.T., Della, A.P. Plagiogyriaceae in **Flora do Brasil 2020**. Jardim Botânico do Rio de Janeiro. Available at: <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB91535>.

## DESCRIPTION

Plants terrestrial. Rhizomes stout, erect, suberect, or shortly decumbent, lacking scales and hairs, with wiry roots. Fronds dimorphic, the fertile ones pinnate, more erect, with longer stipes, and narrower pinnae, the sterile ones pinnatisect to pinnate, glabrous at maturity; petioles stramineous, brownish near the base, fasciculate, glabrous, their bases slightly expanded, with aerophores, generally triangular or subtriangular in cross section, adaxially grooved; blade rhombic, chartaceous, glabrous; rachises stramineous, glabrous; pinnae adnate or sometimes short stalked, linear, margins serrate to 2-serrate, subopposite to opposite, gradually tapering proximally and towards the apex; veins free, simple or 1-forked. Sori elongate covering the abaxial surface of fertile lamina, in a line along both sides of costa, without true indusia, with leaf margins recurved, protecting the sporangia when young, paraphyses lacking; annuli oblique, uninterrupted; spores globose-tetrahedral, trilete, surface smooth or irregularly tuberculate, without chloroplasts;  $x = 65, 66$ .

## COMMENTS

*Plagiogyria* (Kunze) Mett. is a genus that occurs at high elevations, usually in cloud forests. *Plagiogyria* comprises 15 species (PPG I, 2016), mostly of southern and eastern Asia (Japan to Malesia, China, and the Himalayas). In the Americas, *Plagiogyria* is represented by few species, many recognized by some authors as variations within a single species. Noteworthy species include *P. pectinata* (Liebm.) Lellinger, which is very similar to *P. matsumureana* (Makino) Hayata, a species endemic to Japan (Zhang & Nooteboom, 1998), *P. costaricensis* Mett. ex Kuhn, from Costa Rica, and *P. fialhoi* (Fée & Glaziou) Copel., which occurs in MG, SP, PR, RJ, RS and SC.

### Life Form

Herb

### Substrate

Rupicolous, Terrestrial

## DISTRIBUTION

Native, Not endemic to Brazil

### Phytogeographic Domains

Atlantic Rainforest

### Vegetation Types

High Altitude Grassland, Ombrophyllous Forest (Tropical Rain Forest)

### Geographic Distribution

#### Confirmed occurrences

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

## REFERENCE

Iwatsuki, K. 1995. Plagiogyriaceae. In: Iwatsuki, K., T. Yamazaki, D. E. Boufford & H. Ohba. (eds.) Flora of Japan, v.1, Pteridophyta and Gymnospermae, Kodansha, Tokyo: 75-77.

- Lellinger, D.V. 1989. The Ferns and Fern-allies of Costa Rica, Panama, and the Chocó. Nº 2A. *Pteridologia* a publication of The American Ferns Society: 354.
- Lellinger, D. 1971. The American Species of *Plagiogyria* sect. *Carinatae*. *American Fern Journal*, 61(3): 110-118.  
doi:10.2307/1546640
- Mickel, J. T. & Smith, A. R. 2004. The Pteridophytes of Mexico. The New York Botanical Garden, 88: 1055.
- PPG I. (2016). A community-derived classification for extant lycophytes and ferns. *Journal of Systematics and Evolution*, 54(6): 563-603.
- Smith, A. R. 1995. Plagiogyriaceae. In: Steyermark, J. A. et al. (eds.) *Flora of the Venezuelan Guayana*, v. 2, Pteridophytes, Spermatophytes and Acanthaceae-Araceae: 217#219.
- Xianchun, Z. & Nooteboom, H.P. 2013. Plagiogyriaceae. In: Al-Shehbaz, I. A. et al. (eds.) *Flora of China*, v. 2#3, Lycopodiaceae through Polypodiaceae, Science Press (Beijing): 128#131.
- Zhang, X. C. & Nooteboom, H. P. 1998. A taxonomic revision of Plagiogyriaceae. *Blumea*, 43: 401-469.

# *Plagiogyria fialhoi* (Fée & Glaz.) Copel.

## Has as synonym

basionym *Lomaria fialhoi* Fée & Glaz.

## DESCRIPTION

**Root:** colour black. **Stem:** scale absent; **habit** erect/suberect/decumbent. **Leaf:** **dimorphism** present; **division** pinnate/pinnatisect; **form** rhombic; **venation** dichotomous; **petiole** stramineous/brown/glabrous/aerophore/triangular/groove; **hair** absent. **Type of sporangium:** **form** elongated/acrostichoid; **indusium** absent; **paraphyses** absent. **Sporangium:** **annulus** oblique. **Spore:** **chlorophylate** absent; **furrow** trilete; **form** globose/tetrahedral; **surface** smooth/tuberculate.

## ADDITIONAL DESCRIPTION

*Plagiogyria fialhoi* (Fée & Glaz.) Copel., Univ. Calif. Publ. Bot. 19: 297. 1941

Basionym: *Lomaria fialhoi* Fée & Glaz., Crypt. Vasc. Bresil 1. 239 t. 7 f. 2. 1869. Type: Brazil, Rio de Janeiro, Serra dos Órgãos, 27/V/1869, Glaziou 3326 (P-image (P00573980; P00573985; P00573982); RB-image (RB00688235)).

Plants terrestrial. Rhizomes erect, suberect, or shortly decumbent, 0.4-0.8 cm thick, lacking scales and hairs, with roots blackish. Fronds dimorphic, the fertile ones pinnate, more erect, with longer stipes, and narrower pinnae, the sterile ones pinnatisect to barely pinnate, young fronds covered with gelatinous secretion; petioles 6.8-45.5 × 0.1-0.4 cm in sterile fronds, 7.3-76.2 × 0.1-0.5 cm fertile fronds, stramineous, brownish near the base, fasciculate, glabrous, their bases slightly expanded, with aerophores, generally triangular or subtriangular in cross-section, adaxially grooved; laminae rhombic, chartaceous, glabrous, 21.2-71.7 × 6.5-18.3 cm in sterile fronds, 14.7-85.6 × 4.2-13.4 cm fertile fronds; rachises stramineous, glabrous; pinnae adnate or sometimes short-stalked (with 1.5 × 1.0 mm), 3.4-9.7 × 0.4-0.9 cm in sterile fronds, 2.9-7.7 × 0.1-0.4 cm fertile fronds, linear, margins serrate to 2-serrate, sub-opposite to opposite, gradually tapering proximally and towards the apex; veins free, simple or 1-forked; sori elongate covering adaxial surface of fertile lamina, in a line along both sides of costa, without true indusia, with leaf margins recurved, protecting the sporangia when young, paraphyses lacking; annuli oblique, uninterrupted; spores without chloroplasts.

## COMMENTS

*Plagiogyria* is a genus of generally high elevations, and the species often grow in cloud forests or in boggy areas with poor soils (Mickel & Smith, 2004). *Plagiogyria* comprises 15 species (PPG I, 2016), most of southern and eastern Asia (Japan to Malesia, China, and the Himalayas). In Brazil, there is only one species, *P. fialhoi* (Fée & Glaz.) Copel., that occurs in MG, SP, PR, RJ, RS and SC, at altitudes of 1000-2400 m.

## Life Form

Herb

## Substrate

Rupicolous, Terrestrial

## DISTRIBUTION

Native, Is endemic from Brazil

## Phytogeographic Domains

Atlantic Rainforest

## Vegetation Types

High Altitude Grassland, Ombrophyllous Forest (Tropical Rain Forest)





## Geographic Distribution

### Confirmed occurrences

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

## HERBARIUM MATERIAL

- A.F.M. Glaziou, 4376, PC (P01326464), Rio de Janeiro  
A.F.M. Glaziou, 3326, P (P00573985)  
A.F.M. Glaziou, 2423, PC (P01326462), Rio de Janeiro  
A.F.M. Glaziou, 3326, P (P00573985), Rio de Janeiro, **Typus**  
A.F.M. Glaziou, 3326, P (P00573982), Rio de Janeiro, **Typus**  
A.F.M. Glaziou, 3326, P (P00573981)  
A.F.M. Glaziou, 3326, P (P00573985)  
A.F.M. Glaziou, 3326, P (P00573980), Rio de Janeiro  
L.S. Sylvestre, 1892, RB, 466012,  (RB00525980), Rio de Janeiro  
Rizzini, 982, RB, 73723,  (RB00688246), Rio de Janeiro  
A.F.M. Glaziou, 3326, P (P00573982)  
A.F.M. Glaziou, 3326, P (P00573981), Rio de Janeiro, **Typus**  
A.F.M. Glaziou, 3326, K,  (K000501377)  
A.F.M. Glaziou, 3326, RB, 36234,  (RB00688235), Rio de Janeiro, **Typus**

## REFERENCE

- Iwatsuki, K. (1995). Plagiogyriaceae. *In*: Iwatsuki, K., T. Yamazaki, D. E. Boufford & H. Ohba. (eds.) Flora of Japan, v.1, Pteridophyta and Gymnospermae, pp. 75-77, Kodansha, Tokyo.
- Lellinger, D.V. (1989). The Ferns and Fern-allies of Costa Rica, Panama, and the Chocó. Nº 2A. Pteridologia a publication of The American Ferns Society, pp. 354.
- Mickel, J. T. & Smith, A. R. (2004). The Pteridophytes of Mexico. The New York Botanical Garden, v. 88, pp. 1055.
- Smith, A. R. (1995). Plagiogyriaceae. *In*: Steyermark, J. A. et al. (eds.) Flora of the Venezuelan Guayana, v. 2, Pteridophytes, Spermatophytes and Acanthaceae-Araceae, pp. 217-219.
- Xianchun, Z. & Nooteboom, H.P. (2013). Plagiogyriaceae. *In*: Al-Shehbaz, I. A. et al. (eds.) Flora of China, v. 2#3, Lycopodiaceae through Polypodiaceae, pp. 128-131, Science Press (Beijing).