

New Combinations in the Lichen Genus *Parmotrema* Massalongo

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One of the first generic segregates of the large genus *Parmelia*, *Parmotrema* Massalongo, typified by *P. perforatum* (Jacq.) Mass., includes all of the species now classified in *Parmelia* subgenus *Amphigymnia* (Hale, M. E., Contr. U.S. Nat. Herb. 36:193-358. 1965). It is characterized by broad, apically rotund lobes, usually with a distinct bare rim below at the margins. Rhizines are simple and often sparse. Apothecia are usually substipitate to stalked and rather frequently perforate. All species have palisade plectenchyma in the upper cortex and a pored epicortex (Hale, M. E., Smithsonian Contr. Bot. 10:9. 1973). Given this circumscription we are probably justified in including here also the species now classified in *Parmelia* subgenus *Parmelia* section *Irregulares*, the *P. reticulata* group, which while broad lobed, have more dense, simple to rarely squarrose rhizines to or very near the margins below.

- Parmotrema abessinicum* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia abessinica* Krempfh. Linnaea 41:140. 1877.
- Parmotrema abnuens* (Nyl.) Hale, comb. nov. Basionym: *Parmelia abnuens* Nyl. Flora 68:610. 1885.
- Parmotrema affluens* (Hale) Hale, comb. nov. Basionym: *Parmelia affluens* Hale, Phytol. 22:141. 1971.
- Parmotrema aldabrense* (Dodge) Hale, comb. nov. Basionym: *Parmelia aldabrensis* Dodge, Ann. Mo. Bot. Gard. 46:160. 1959.
- Parmotrema amboimense* (Dodge) Hale, comb. nov. Basionym: *Parmelia amboimensis* Dodge, Ann. Mo. Bot. Gard. 46:158. 1959.
- Parmotrema andinum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia andina* Müll. Arg., Rev. Mycol. 1:169. 1879.
- Parmotrema appendiculatum* (Fée) Hale, comb. nov. Basionym: *Parmelia appendiculata* Fée, Ess. Crypt. Suppl. 118. 1837.
- Parmotrema araucariarum* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia araucariarum* Zahlbr., Denkschr. Akad. Wiss. Math. Naturw. Wien 83:179. 1909.
- Parmotrema argentinum* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia argentina* Krempfh., Flora 61:476. 1878.

- Parmotrema arnoldii* (DR.) Hale, comb. nov. Basionym: *Parmelia arnoldii* DR., *Nyt Mag. Naturv.* 62:80. 1924.
- Parmotrema austrosinense* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia austrosinensis* Zahlbr., *Symb. Sin.* 3:192. 1930.
- Parmotrema bangii* (Vain.) Hale, comb. nov. Basionym: *Parmelia bangii* Vain. *Bot. Tidsskr.* 29:104. 1909.
- Parmotrema breviciliatum* (Hale) Hale, comb. nov. Basionym: *Parmelia breviciliata* Hale, *Contr. U.S. Nat. Herb.* 36:282. 1965.
- Parmotrema cetratum* (Ach.) Hale, comb. nov. Basionym: *Parmelia cetrata* Ach. *Syn. Lich.* 198. 1814.
- Parmotrema chiapense* (Hale) Hale, comb. nov. Basionym: *Parmelia chiapensis* Hale, *Contr. U.S. Nat. Herb.* 36:323. 1965.
- Parmotrema commensuratum* (Hale) Hale, comb. nov. Basionym: *Parmelia commensurata* Hale, *Phytol.* 22:31. 1971.
- Parmotrema compositum* (Hale) Hale, comb. nov. Basionym: *Parmelia composita* Hale, *Phytol.* 23:343. 1972.
- Parmotrema conformatum* (Vain.) Hale, comb. nov. Basionym: *Parmelia conformata* Vain. *Acta Soc. Faun Fl. Fenn.* 7(7):36. 1890.
- Parmotrema coralliforme* (Hale) Hale, comb. nov. Basionym: *Parmelia coralliformis* Hale, *Contr. U.S. Nat. Herb.* 36:324. 1965.
- Parmotrema corniculans* (Nyl.) Hale, comb. nov. Basionym: *Parmelia corniculans* Nyl. *Flora* 68:607. 1885.
- Parmotrema cornuta* (Lynge) Hale, comb. nov. Basionym: *Parmelia cornuta* Lynge, *Ark. Bot.* 13(13):76. 1914.
- Parmotrema crassescens* (Stirt.) Hale, comb. nov. Basionym: *Parmelia crassescens* Stirt., *Royal Phil. Soc. Glasgow Proc.* 10:161. 1877.
- Parmotrema cristatum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia cristata* Nyl. *Flora* 52:291. 1869.
- Parmotrema cristiferum* (Tayl.) Hale, comb. nov. Basionym: *Parmelia cristifera* Tayl. *London Journ. Bot.* 6:165. 1847.
- Parmotrema crocoides* (Hale) Hale, comb. nov. Basionym: *Parmelia crocoides* Hale, *Contr. U.S. Nat. Herb.* 36:244. 1965.
- Parmotrema cryptoxanthum* (des Abbayes) Hale, comb. nov. Basionym: *Parmelia cryptoxantha* des Abbayes, *Mem. Inst. Sci. Madagascar* 10:115. 1961.
- Parmotrema defectum* (Hale) Hale, comb. nov. Basionym: *Parmelia defecta* Hale, *Contr. U.S. Nat. Herb.* 36:244. 1965.
- Parmotrema delicatulum* (Vain.) Hale, comb. nov. Basionym: *Parmelia delicatula* Vain. *Acta Soc. Faun. Fl. Fenn.* 7(7):35. 1890.
- Parmotrema diacidulum* (Hale) Hale, comb. nov. Basionym: *Parmelia diacidula* Hale, *Contr. U.S. Nat. Herb.* 36:287. 1965.
- Parmotrema diffractaicum* (Essl.) Hale, comb. nov. Basionym: *Parmelia diffractaica* Essl. *Bryol.* 75:80. 1972.
- Parmotrema dilatatum* (Vain.) Hale, comb. nov. Basionym: *Parmelia dilatata* Vain. *Acta Soc. Faun. Fl. Fenn.* 7(7):33. 1890.
- Parmotrema direagens* (Hale) Hale, comb. nov. Basionym: *Parmelia direagens* Hale, *Contr. U.S. Nat. Herb.* 36:288. 1965.

- Parmotrema disparile* (Nyl.) Hale, comb. nov. Basionym: *Parmelia disparilis* Nyl. Syn. Lich. 1:381. 1860.
- Parmotrema diversum* (Hale) Hale, comb. nov. Basionym: *Parmelia diversa* Hale, Phytol. 27:1. 1973.
- Parmotrema dolosum* (des Abbayes) Hale, comb. nov. Basionym: *Parmelia dolosa* des Abbayes, Mem. Inst. Sci. Madagascar, ser. B, 10:115. 1961.
- Parmotrema dominicanum* (Vain.) Hale, comb. nov. Basionym: *Parmelia dominicana* Vain. Journ. Bot. Brit. & For. 34:32. 1896.
- Parmotrema eborinum* (Hale) Hale, comb. nov. Basionym: *Parmelia eborina* Hale, Contr. U.S. Nat. Herb. 36:249. 1965.
- Parmotrema eciliatum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia crinita* var. *eciliata* Nyl. Flora 52:291. 1869.
- Parmotrema endosulphureum* (Hillm.) Hale, comb. nov. Basionym: *Parmelia tinctorum* var. *endosulphurea* Hillm. Repert. Sp. Nov. Fedde 48:8. 1940.
- Parmotrema erasium* (Hale) Hale, comb. nov. Basionym: *Parmelia erasmia* Hale, Contr. U.S. Nat. Herb. 36:290. 1965.
- Parmotrema eunetum* (Stirt.) Hale, comb. nov. Basionym: *Parmelia euneta* Stirton, Scot. Nat. 4:298. 1877-78.
- Parmotrema eurysacum* (Hue) Hale, comb. nov. Basionym: *Parmelia eurusaca* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:194. 1899.
- Parmotrema explanatum* (Hale) Hale, comb. nov. Basionym: *Parmelia explanata* Hale, Journ. Jap. Bot. 40:199. 1964.
- Parmotrema fasciculatum* (Vain.) Hale, comb. nov. Basionym: *Parmelia fasciculata* Vain. Hedwigia 38:122. 1899.
- Parmotrema flavescens* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia glaberrima* var. *flavescens* Krempfh. Flora 52:223. 1869.
- Parmotrema flavotinctum* (Hale) Hale, comb. nov. Basionym: *Parmelia flavotincta* Hale, Contr. U.S. Nat. Herb. 36:291. 1965.
- Parmotrema fractum* (Hale) Hale, comb. nov. Basionym: *Parmelia fracta* Hale, Contr. U.S. Nat. Herb. 36:292. 1965.
- Parmotrema glaucocarpoides* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia glaucocarpoides* Zahlbr. Cat. Lich. Univ. 6:167. 1929.
- Parmotrema grayanum* (Hue) Hale, comb. nov. Basionym: *Parmelia grayana* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:184. 1899.
- Parmotrema hababiana* (Gyel.) Hale, comb. nov. Basionym: *Parmelia hababiana* Gyel. Repert. Sp. Nov. Fedde 29:298. 1931.
- Parmotrema haitiense* (Hale) Hale, comp. nov. Basionym: *Parmelia haitiensis* Hale, Bryol. 62:20. 1959.
- Parmotrema hanningtonianum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia hanningtoniana* Müll. Arg. Flora 73:339. 1890.
- Parmotrema hololobum* (Hale) Hale, comb. nov. Basionym: *Parmelia hololoba* Hale, Contr. U.S. Nat. Herb. 36:293. 1965.
- Parmotrema homotomum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia homotoma* Nyl. Flora 68:613. 1885.
- Parmotrema hypoleucinum* (Stein.) Hale, comb. nov. Basionym: *Parmelia hypoleucina* Stein. Öster. Bot. Zeitschr. 67:282. 1918.

- Parmotrema hypotropum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia hypotropa* Nyl. Syn. Lich. 379. 1860.
- Parmotrema inexpectatum* (des Abb.) Hale, comb. nov. Basionym: *Parmelia inexpectata* des Abb. Bull. Inst. Fr. Afr. Noire 20:16. 1958.
- Parmotrema insuetum* (Kurok.) Hale, comb. nov. Basionym: *Parmelia insueta* Kurok. Bull. Nat. Sci. Mus. Tokyo 10:371. 1967.
- Parmotrema latissimum* (Fée) Hale, comb. nov. Basionym: *Parmelia latissima* Fée, Ess. Crypt. Suppl. 119. 1837.
- Parmotrema leucosemorrhizum* (Hue) Hale, comb. nov. Basionym: *Parmelia leucosemorrhiza* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:192. 1899.
- Parmotrema lobulascens* (Stein.) Hale, comb. nov. Basionym: *Parmelia lobulascens* Stein. Verh. Zool. Bot. Gesell. Wien 53:234. 1903.
- Parmotrema lophogenum* (des Abb.) Hale, comb. nov. Basionym: *Parmelia lophogena* des Abb. Bull. Inst. Fr. Afr. Noire 20:19. 1958.
- Parmotrema louisianae* (Hale) Hale, comb. nov. Basionym: *Parmelia louisianae* Hale, Phytol. 22:92. 1971.
- Parmotrema maclayanum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia maclayana* Müll. Arg. Flora 74:376. 1891.
- Parmotrema macrocarpum* (Pers.) Hale, comb. nov. Basionym: *Parmelia macrocarpa* Pers. in Gaudichaud, Voy. Uranie, 197. 1826.
- Parmotrema madagascariacea* (Hue) Hale, comb. nov. Basionym: *Parmelia caperata* var. *madagascariacea* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:181. 1899.
- Parmotrema margaritatum* (Hue) Hale, comb. nov. Basionym: *Parmelia margaritata* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:193. 1899.
- Parmotrema melanothrix* (Mont.) Hale, comb. nov. Basionym: *Parmelia urceolata* var. *melanothrix* Mont. Ann. Sci. Nat. Bot. ser. 2, 2:372. 1834.
- Parmotrema mellissii* (Dodge) Hale, comb. nov. Basionym: *Parmelia mellissii* Dodge, Ann. Mot. Bot. Gard. 46:134. 1959.
- Parmotrema merrillii* (Vainio) Hale, comb. nov. Basionym: *Parmelia merrillii* Vainio, Phil. Journ. Sci. 4:658. 1909.
- Parmotrema mesogenes* (Nyl.) Hale, comb. nov. Basionym: *Parmelia mesogenes* Nyl. Flora 68:609. 1885.
- Parmotrema mestropum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia mesotropa* Müll. Arg. Rev. Mycol. 10:55. 1888.
- Parmotrema michauxianum* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia michauxiana* Zahlbr. Cat. Lich. Univ. 244. 1929.
- Parmotrema mirandum* (Hale) Hale, comb. nov. Basionym: *Parmelia miranda* Hale, Contr. U.S. Nat. Herb. 36:273. 1965.
- Parmotrema mordenii* (Hale) Hale, comb. nov. Basionym: *Parmelia mordenii* Hale, Smithsonian Contr. Bot. 4:19. 1971.
- Parmotrema myelochroum* (Hale) Hale, comb. nov. Basionym: *Parmelia myelochroa* Hale, Contr. U.S. Nat. Herb. 36:256. 1965.
- Parmotrema natalense* (Stein. & Zahlbr.) Hale, comb. nov. Basionym: *Parmelia natalensis* Stein. & Zahlbr. Bot. Jahrb. Engler 60:515. 1926.

- Parmotrema nilgherrense* (Nyl.) Hale, comb. nov. Basionym: *Parmelia nilgherrensis* Nyl. Flora 52:291. 1869.
- Parmotrema ochroglaucum* (Hale) Hale, comb. nov. Basionym: *Parmelia ochroglauca* Hale, Contr. U.S. Nat. Herb. 36:274. 1965.
- Parmotrema ornatulum* (Hale) Hale, comb. nov. Basionym: *Parmelia ornatula* Hale, Contr. U.S. Nat. Herb. 36:299. 1965.
- Parmotrema pachysporum* (Hale) Hale, comb. nov. Basionym: *Parmelia pachyspora* Hale, Contr. U.S. Nat. Herb. 36:299. 1965.
- Parmotrema pancheri* (Hue) Hale, comb. nov. Basionym: *Parmelia pancheri* Hue, Nouv. Arch. Mus. Paris, ser. 4, 1:202. 1899.
- Parmotrema paradoxum* (Hale) Hale, comb. nov. Basionym: *Parmelia paradoxa* Hale, Phytol. 27:1. 1973.
- Parmotrema parahypotropum* (Culb.) Hale, comb. nov. Basionym: *Parmelia parahypotropica* Culb. Bryol. 76:29. 1973.
- Parmotrema paulense* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia paulensis* Zahlbr. Denkschr. Akad. Wiss. Naturw. Wien 83:175. 1909.
- Parmotrema peralbidum* (Hale) Hale, comb. nov. Basionym: *Parmelia albidula* Hale, Contr. U.S. Nat. Herb. 36:257. 1965.
- Parmotrema permutatum* (Stirt.) Hale, comb. nov. Basionym: *Parmelia permutata* Stirt. Scot. Nat. 4:252. 1877-78.
- Parmotrema planatilobatum* (Hale) Hale, comb. nov. Basionym: *Parmelia planatilobata* Hale, Journ. Jap. Bot. 40:200. 1964.
- Parmotrema praesorediosum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia praesorediosa* Nyl. Sert. Lich. Trop. Labuan Singapore 18. 1891.
- Parmotrema preperforatum* (Culb.) Hale, comb. nov. Basionym: *Parmelia preperforata* Culb. Bryol. 76:27. 1973.
- Parmotrema procerum* (Stein. & Zahlbr.) Hale, comb. nov. Basionym: *Parmelia procera* Stein. & Zahlbr. Bot. Jahrb. Engler 60:537. 1926.
- Parmotrema pseudocrinitum* (des Abb.) Hale, comb. nov. Basionym: *Parmelia pseudocrinita* des Abb. Bull. Inst. Fr. Afr. Noire 20:19. 1958.
- Parmotrema pseudoreticulatum* (Tavares) Hale, comb. nov. Basionym: *Parmelia pseudoreticulata* Tavares, Acta Port. Biol. 1B:138. 1945.
- Parmotrema pseudotinctorum* (des Abb.) Hale, comb. nov. Basionym: *Parmelia pseudotinctorum* des Abb. Bull. Inst. Fr. Afr. Noire 13:973. 1951.
- Parmotrema rampoddense* (Nyl.) Hale, comb. nov. Basionym: *Parmelia rampoddensis* Nyl. Acta Soc. Sci. Fenn. 26(10):7. 1900.
- Parmotrema ramusculum* (Hale) Hale, comb. nov. Basionym: *Parmelia ramuscula* Hale, Contr. U.S. Nat. Herb. 36:261. 1965.
- Parmotrema recipiendum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia recipienda* Nyl. Flora 68:609. 1885.
- Parmotrema rigidum* (Lynge) Hale, comb. nov. Basionym: *Parmelia rigida* Lynge, Ark. Bot. 13(13):50. 1914.
- Parmotrema rimulosum* (Dodge) Hale, comb. nov. Basionym: *Parmelia rimulosa* Dodge, Ann. Mo. Bot. Gard. 46:133. 1959.
- Parmotrema robustum* (Degel.) Hale, comb. nov. Basionym: *Parmelia robusta* Degel. Goth. Kungl. Vet. Vitterh. Samh. Handl. ser B, 7:33. 1941.

- Parmotrema rubifaciens* (Hale) Hale, comb. nov. Basionym: *Parmelia rubifaciens* Hale, Contr. U.S. Nat. Bot. Herb. 36:261. 1965.
- Parmotrema saccatilobum* (Tayl.) Hale, comb. nov. Basionym: *Parmelia saccatiloba* Tayl. London Journ. Bot. 6:174. 1847.
- Parmotrema sancti-angelii* (Lynge) Hale, comb. nov. Basionym: *Parmelia sancti-angelii* Lynge, Ark. Bot. 13(13):35. 1914.
- Parmotrema setchellii* (Vainio) Hale, comb. nov. Basionym: *Parmelia setchellii* Vainio, Univ. Calif. Publ. Bot. 12:5. 1924.
- Parmotrema simulans* (Hale) Hale, comb. nov. Basionym: *Parmelia simulans* Hale, Phytol. 22:32. 1971.
- Parmotrema soyouxii* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia soyouxii* Müll. Arg. Linnaea 9:32. 1880.
- Parmotrema spilotum* (Hale) Hale, comb. nov. Basionym: *Parmelia spilota* Hale, Phytol. 27:3. 1973.
- Parmotrema stuppeum* (Tayl.) Hale, comb. nov. Basionym: *Parmelia stuppea* Tayl. London Journ. Bot. 6:175. 1847.
- Parmotrema subarnoldii* (des Abb.) Hale, comb. nov. Basionym: *Parmelia subarnoldii* des Abb. Mem. Inst. Sci. Madagascar, ser. B, 10:113. 1961.
- Parmotrema subcaperatum* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia subcaperata* Krempfh. Nat. For. Kjoeb. Vid. Medd. 1873:10. 1873.
- Parmotrema subcoloratum* (Hale) Hale, comb. nov. Basionym: *Parmelia colorata* Hale, Contr. U.S. Nat. Herb. 36:340. 1965.
- Parmotrema subcorallinum* (Hale) Hale, comb. nov. Basionym: *Parmelia subcorallina* Hale, Journ. Jap. Bot. 37:345. 1962.
- Parmotrema subisidiosum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia cetrata* var. *subisidiosa* Müll. Arg. Bot. Jahrb. Engler 20:256. 1894.
- Parmotrema subrugatum* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia subrugata* Krempfh. Verh. Zool. Bot. Gesell. Wien 18:320. 1868.
- Parmotrema subschimperii* (Hale) Hale, comb. nov. Basionym: *Parmelia subschimperii* Hale, Phytol. 23:345. 1972.
- Parmotrema subtinctorium* (Zahlbr.) Hale, comb. nov. Basionym: *Parmelia subtinctoria* Zahlbr. Symb. Sin. 3:193. 1930.
- Parmotrema sulphuratum* (Nees & Flot.) Hale, comb. nov. Basionym: *Parmelia sulphurata* Nees & Flot. Linnaea 9:501. 1835.
- Parmotrema tinctorum* (Nyl.) Hale, comb. nov. Basionym: *Parmelia tinctorum* Nyl. Flora 55:547. 1872.
- Parmotrema uberrimum* (Hue) Hale, comb. nov. Basionym: *Parmelia uberrima* Hue, Bull. Soc. Bot. Fr. Mem. 63:9. 1916.
- Parmotrema uruguense* (Krempfh.) Hale, comb. nov. Basionym: *Parmelia uruguensis* Krempfh. Flora 61:461. 1878.
- Parmotrema viridiflavum* (Hale) Hale, comb. nov. Basionym: *Parmelia viridiflava* Hale, Contr. U.S. Nat. Herb. 36:274. 1965.
- Parmotrema wainii* (A.L. Smith) Hale, comb. nov. Basionym: *Parmelia wainii* A.L. Smith, Journ. Linn. Soc. London Bot. 46:85. 1922.
- Parmotrema xanthinum* (Müll. Arg.) Hale, comb. nov. Basionym: *Parmelia proboscidea* var. *xanthina* Müll. Arg. Flora 67:616. 1884.
- Parmotrema zollingeri* (Hepp) Hale, comb. nov. Basionym: *Parmelia zollingeri* Hepp in Zoll. Syst. Verz. 9. 1854.



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