**Supplemental Information**

**Title:** Sustainability of Jaborandi in the eastern Brazilian Amazon

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**Supplemental Figure 1.** Frequency distribution (%) of *P. microphyllus* occurrence points on the environmental variables Altitude (a); mean annual precipitation (b) and mean annual temperature (c). Environmental data were retrieved from WorldClim (Hijmans et al. 2001).

0

10

30

50

150

250

350

100

200

300

400

20

Frequency (%)

Altitude (m)

a

1100

1500

1900

2300

1300

1700

2100

2500

0

10

30

20

Frequency (%)

Mean annual precipitation (mm)

b

25

26

27

25.5

26.5

27.5

0

10

30

20

Frequency (%)

Mean anual temperature (oC)

c

0

100

200

300

15

25

35

Jan

Mar

May

Jul

Sep

Nov

Mean temperature (oC)

Mean precipitation (mm)

**Supplemental Figure 2.** Monthly time series of precipitation (grey bars) and maximal (solid line) and minimal (dotted line) temperature in the studied site. Data recorded from the last 40 years (1976-2016) were used to build the time series. All data were collected from BDMEP, a database of INMET (Brazilian National Institute of Meteorology).

0

5

10

15

20

25

Seed germination (%)

+ Pericarp - AG3

+ Pericarp + AG3

- Pericarp - AG3

- Pericarp + AG3

a

b

b

b

**Supplemental Figure 3.** *P. microphyllus* seed germination. Seeds stored at low temperature and air humidity for one year were germinated in vitro culture (MS medium) with (5.33 mM) and without gibberellic acid (AG3). Half of the seeds was scarified by pericarp removing. Seeds were kept in plant growth chamber (Fitotron® SGC 120) at dark with day/night temperature of 24/20 oC for 30 days. Treatments were composed of four repetition with 20 seeds each one of the repetitions. Error bars indicate confidence intervals at the 0.95 risk level. Bars associated with the same letter indicate nonsignificant differences (P > 0.05) in a Tukey test.

**Supporting Table 1.** Species of Pilocarpus genus currently available in the repository The Plant List ([www.theplantlist.org](http://www.theplantlist.org/)). Occurrence and reference of the original publication of each species.

|  |  |  |
| --- | --- | --- |
| **Species** | **Occurrence** | **Reference** |
| *Pilocarpus alatus* C. J. Joseph ex Skorupa | Brazil | Novon 8(4): 447. 1998 |
| *Pilocarpus carajaensis* Skorupa | Brazil | Novon 8(4): 44. 1998 |
| *Pilocarpus demerarae* Sandwith | Guyana | Kew Bull. 3(2): 308. 1948 |
| *Pilocarpus giganteus* Engler1 | Brazil | Fl. Bras. (Martius) 12(2): 136. 1874 |
| *Pilocarpus goudotianus* Tul.2 | Colombia and Venezuela | Ann. Sci. Nat., Bot. sér. 3, 7: 284. 1847 |
| *Pilocarpus goudotianus* var. *mollis* (Cuatrec.) Kaastra3 | Colombia | Acta Bot. Neerl. 26(6): 486. 1977 |
| *Pilocarpus grandiflorus* Engler | Brazil | Flora Brasiliensis 12(2): 137, t. 31, 1874 |
| *Pilocarpus jaborandi* Holmes4 | Brazil | Pharm. J. Trans. ser. 3 22: 875. 1892 |
| *Pilocarpus manuensis* Skorupa | Peru | Novon 9(2): 257, f. 1A–C 1999 |
| *Pilocarpus microphyllus* Stapf ex Wardleworth | Brazil and Surinam | Pharm. J. Trans. ser. 3 24: 506 1893 |
| *Pilocarpus pauciflorus* Saint Hilaire5 | Brazil | Bull. Sci. Soc. Philom. Paris 1823: 131 1823 |
| *Pilocarpus pennatifolius* Lemmaire6 | Argentina, Brazil and Paraguay | Jard. Fleur. 3: t. 263 1853 |
| *Pilocarpus peruvianus* (Macbride) Kaastra7 | Bolivia, Brazil, Ecuador and Peru | Acta Botanica Neerlandica 26: 487. 1978. |
| *Pilocarpus racemosus* Vahl8 | Belize, Caribbean, Colombia, Costa Rica, El salvador, French Guyana, Honduras, Mexico and Venezuela | Eclog. Amer. 1: 29 1797 |
| *Pilocarpus riedelianus* Engler | Brazil | Flora Brasiliensis 12(2): 135. 1874 |
| *Pilocarpus spicatus* Saint Hilaire9 | Brazil and Peru | Bull. Sci. Soc. Philom. Paris 1823: 131 1823 |
| *Pilocarpus spicatus* var *lealii* (Machado) Kaastra10 | Brazil | Acta Bot. Neerl. 26: 487 1977 |
| *Pilocarpus spicatus* subs *longeracemosus* (Mart. Ex Engl.) Kaastra | Brazil | Acta Botanica Neerlandica 26: 487. 1977 |
| *Pilocarpus sulcatus* Skorupa | Brazil | Novon 8(4): 453, f. 3A–H 1998 |
| *Pilocarpus trachyllophus* Holmes | Brazil | Pharm. J. Trans. ser. 3 24: 1066, f. 1 1894 |

*1Pilocarpus* *macrocarpus* Engl. is a synonym of *Pilocarpus* *giganteus* Engl.

*2Pilocarpus* *goudotianus* Tul. have 4 synonyms (*Pilocarpus* alvaradoi Pittier*, Pilocarpus* goudotianus subsp. *goudotianus*, *Pilocarpus* goudotianus var. *goudotianus*, *Pilocarpus* racemosus subsp. *goudotianus* (Tul.) Skorupa)

*3Pilocarpus* *alvaradoi* var. *mollis* Cuatrec. is a synonym of *Pilocarpus* *goudotianus* var. *mollis* (Cuatrec.) Kaastra

*4Pilocarpus* *cearensis* Rizzini and *Pilocarpus* officinalis Poehl are a synonym of *Pilocarpus* *jaborandi* Holmes

*5Pilocarpus* *breviracemosus* Cowan, *Pilocarpus* *fluminensis* Casar. ex Engl. and *Pilocarpus* *organensis* Occhioni & Rizzini are a synonym of *Pilocarpus* *pauciflorus* A. Saint Hilaire

*6Pilocarpus* *pennatifolius* f. *brasiliensis* Hassl., *Pilocarpus* *pennatifolius* f. *gracilis* (Chodat & Hassl.) Hassl., *Pilocarpus* *pennatifolius* f. *intermedius* Hassl., *Pilocarpus* *pennatifolius* f. *latifoliolatus* Hassl., *Pilocarpus* *pennatifolius* f. *paraguariensis* Hassl., *Pilocarpus* *pennatifolius* var. *pennatifolius*, *Pilocarpus* *pennatifolius* var. *pilosus* Kaastra, *Pilocarpus* *pennatifolius* var. *selloanus* (Engl.) Hassl., *Pilocarpus* *selloanus* Engl., *Pilocarpus* *selloanus* f. *brevipedicellata* Chodat & Hassl. and, *Pilocarpus* *selloanus* var. *gracilis* Chodat & Hassl. are synonym of *Pilocarpus* *pennatifolius* Lemaire

*7Pilocarpus* *spicatus* var. *peruvianus* J.F. Macbr. is a synonym of *Pilocarpus* *peruvianus* (J.F. Macbr.) Kaastra

*8Pilocarpus* *latifolius* A. Saint Hilaire & Tul., *Pilocarpus* *racemosus* subsp. *racemosus* and *Pilocarpus* *racemosus* var. *racemosus* are synonym of *Pilocarpus* *racemosus* Vahl.

*9Pilocarpus* *spicatus* var. *spicatus* and *Pilocarpus* *spicatus* subsp. *spicatus* are synonym of *Pilocarpus* *spicatus* A. Saint Hilaire

10*Pilocarpus lealii* Machado is a synonym of *Pilocarpus spicatus* var. *lealii* (Machado) Kaastra

11*Pilocarpus longeracemosus* Mart. ex Engl. is a synonym of *Pilocarpus spicatus* subs. *longeracemosus* (Mart. Ex Engl.) Kaastra

**Supporting Table 2.** Occurrence records of *P. microphyllus* retrieved from speciesLink (http://www.splink.org.br/) and Global Biodiversity Information Facility (GBIF - http://www.gbif.org/)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Collection code** | **Country** | **State** | **County** | **Data source** |
| Naturalis | Brazil | Maranhão | Moju | gbif |
| Naturalis | Brazil | Maranhão | Açailândia | gbif |
| Cenargen | Brazil | Maranhão | Açailândia | gbif |
| UEMA | Brazil | Maranhão | Buriticupu | gbif |
| INPA | Brazil | Maranhão | Nina Rodrigues | gbif |
| Cenargen | Brazil | Maranhão | Arame | gbif |
| Cenargen | Brazil | Maranhão | Barra do corda | gbif |
| NY | Brazil | Maranhão | São Luiz | gbif |
| Naturalis | Brazil | Maranhão | Santa Quitéria | gbif |
|  | Brazil | Maranhão |  | gbif |
| NY | Brazil | Maranhão |  | gbif |
| CEN | Brazil | Maranhão | Açailândia | specieslink |
| CEN | Brazil | Maranhão | Açailândia | specieslink |
| CPMA | Brazil | Maranhão | Imperatriz | specieslink |
| SLUI | Brazil | Maranhão | Buriticupu | specieslink |
| CEN | Brazil | Maranhão | Arame | specieslink |
| EAC | Brazil | Maranhão | Santa Luzia | specieslink |
| EAC | Brazil | Maranhão | Santa Inês | specieslink |
| CEN | Brazil | Maranhão | Barra do Corda | specieslink |
| ALCB | Brazil | Maranhão | Barra do Corda | specieslink |
| EAC | Brazil | Maranhão | Barra do Corda | specieslink |
| CEN | Brazil | Maranhão | São Luis | specieslink |
| HST | Brazil | Maranhão | Vargem Grande | specieslink |
| CEN | Brazil | Maranhão | Nina Rodrigues | specieslink |
| IPA | Brazil | Maranhão | Anapurus | specieslink |
| HDELTA | Brazil | Maranhão | Mata Roma | specieslink |
| EAC | Brazil | Maranhão | Mata Roma | specieslink |
| CEN | Brazil | Maranhão | Santa Quitéria | specieslink |
| HST | Brazil | Maranhão | Santa Quitéria | specieslink |
| NYBG\_BR | Brazil | Maranhão | Carolina | specieslink |
| MOBOT\_BR | Brazil | Maranhão | Carolina | specieslink |
| NYBG\_BR | Brazil | Maranhão | Santa Luzia | specieslink |
| NYBG\_BR | Brazil | Maranhão | São Luís | specieslink |
|  | Brazil | Pará | Marabá | gbif |
| Naturalis | Brazil | Pará |  | gbif |
| Cenargen | Brazil | Pará |  | gbif |
| INPA | Brazil | Pará | Parauapebas | specieslink |
| CEN | Brazil | Pará | Eldorado Dos Carajas | specieslink |
| INPA | Brazil | Pará | Marabá | specieslink |
| CEN | Brazil | Pará | Moju | specieslink |
| SPSF | Brazil | Pará | Belém | specieslink |
| CEN | Brazil | Pará | Sao Geraldo do Araguaia | specieslink |
| CEN | Brazil | Pará | Dom Eliseu | specieslink |
| NYBG\_BR | Brazil | Pará | Tucuruí | specieslink |
| MOBOT\_BR | Brazil | Pará | Tucurui | specieslink |
| MOBOT\_BR | Brazil | Pará |  | specieslink |
| MOBOT\_BR | Brazil | Pará | Marabá | specieslink |
| Cenargen | Brazil | Piauí |  | gbif |
| HDELTA | Brazil | Piauí | Porto | specieslink |
| EAC | Brazil | Piauí | José de Freitas | specieslink |
| HDELTA | Brazil | Piauí | Matias Olímpio | specieslink |
| HDELTA | Brazil | Piauí | São João do Arraial | specieslink |
| HDELTA | Brazil | Piauí | Luzilândia | specieslink |
| CEN | Brazil | Piauí | parnaiba | specieslink |
| HDELTA | Brazil | Piauí | Parnaíba | specieslink |
| Naturalis | French Guiana | Saint Laurent Du Maroni | | gbif |
| NY | Suriname | Sipaliwini | Bakhuis | gbif |
| NY | Suriname |  | Lely | gbif |