SUPPORTING INFORMATION

**Patterns of phylogenetic community structure of sand dune plant communities in the Yucatan Peninsula: the role of deterministic and stochastic processes in community assembly**

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**Table S1.** GenBank accession numbers for the plants used in the phylogenetic analysis.

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| --- | --- | --- | --- | --- |
| **Family** | **Species collected** | **Surrogate species** | ***matK*** | ***rbcL*** |
| **Acanthaceae** | *Bravaisia berlandierianaa* (Nees) T.F.Daniel | *Barleria oenotheroides* Dum. Cours. (1) | JQ586383 | JQ590037 |
|  | *Dicliptera sexangularis* (L.) Juss. | *Justicia carthagenensis* Jacq. (1) | JQ586402 | JQ590056 |
| **Agavaceae** | *Agave angustifolia* Haw.  |   | JQ586433 | JQ590092 |
| **Aizoaceae** | *Sesuvium portulacastrum* (L.) L.  |   | KC185420 | KJ773883 |
| **Amaranthaceae** | *Alternanthera microcephala* (Moq.) Schinz  | *Alternanthera flavescens* Kunth (1) | AM887484 |   |
|  | *Amaranthus dubius* Mart. ex Thell. | *Amaranthus spinosus* L. (1) | JQ586447 |   |
|  | *Atriplex tampicensis* Standl.  | *Atriplex canescens* (Pursh) Nutt. (1) | JX517608 | JX572316 |
|  | *Blutaparon vermiculare* (L.) Mears. |   | AY514798 | AY270067 |
|  | *Suaeda linearis* (Elliott) Moq. |   | KJ773192 | KJ773937 |
| **Amaryllidaceae** | *Hymenocallis littoralis* (Jacq.) Salisb.  |   | JX464595 | JX903156 |
| **Anacardiaceae** | *Metopium brownei* (Jacq.) Urb.  |   |   | GU935434 |
| **Apocynaceae** | *Metastelma schlechtendalii* Decne.  | *Cynanchum racemosum* (Jacq.) Jacq. (1) | JQ586764 | JQ590529 |
|  | *Echites umbellatus* Jacq. |   | EF456303 |   |
| **Arecaceae** | *Pseudophoenix sargentii* H. Wendl. ex Sarg.  |   |   | AJ404779 |
|  | *Thrinax radiata* Lodd. ex Schult. & Schult.f.  |   | AM114561 | AY012459 |
| **Asteraceae** | *Ambrosia hispida* Pursh | *Ambrosia artemisiifolia* L. (2) | HQ593164 | HQ589948 |
|  | *Bidens pilosa* L.  |   | AY551477 | HM849815 |
|  | *Flaveria linearis* Lag.  |   | KJ772792 | HQ534142 |
|  | *Melanthera nivea* (L.) Small.  |   | AY215826 | KJ773678 |
|  | *Porophyllum punctatum* (Mill.) |   | KJ525314 |   |
| **Boraginaceae** | *Tournefortia gnaphalodes* (L.) R.Br. ex Roem. & Schult. | *Tournefortia glabra* L. (1) | JQ587135 | JQ590937 |
| **Brassicaceae** | *Cakile edentula* (Bigelow) Hook.  |   | JN584957 | HM849832 |
| **Burseraceae** | *Bursera simaruba* (L.) Sarg.  |   | JQ587167 | KJ773325 |
| **Cactaceae** | *Acanthocereus tetragonus* (L.) Hummelinck |   | HM041645 |   |
|  | *Opuntia stricta* (Haw.) Haw. |   | JF786853 | KJ773705 |
| **Capparaceae** | *Capparis flexuosa* (L.) L. |   | EU371760 |   |
|  | *Capparis incana* Kunth |   |   | JQ591019 |
| **Celastraceae** | *Crossopetalum rhacoma* Crantz |   | KJ772685 | KJ773411 |
|  | *Maytenus phyllanthoides* Benth. | *Maytenus schippii* Lundell (1) | GQ982041 | GQ981797 |
| **Combretaceae** | *Conocarpus erectus* L. |   | JQ589989 | KU761908 |
| **Commelinaceae** | *Commelina erecta* L. |   | KJ772671 | KR736605 |
| **Convolvulaceae** | *Ipomoea pes-caprae* (L.) R. Br. |   |   | JQ812690 |
| **Euphorbiaceae** | *Croton punctatus* Jacq.  |   |   | EF405851 |
|  | *Enriquebeltrania crenatifolia* (Miranda) Rzed.  |   |   | AY794975 |
|  | *Euphorbia cyathophora* Mur. |  (= *Euphorbia heterophylla* L.) (1) | GU214861 | KU569187 |
|  | *Euphorbia mesembryanthemifolia* Jacq.  |   | HQ645757 | AY794820 |
| **Fabaceae** | *Caesalpinia vesicaria* L.  | *Caesalpinia bonduc* (L.) Roxb. (1) | JQ587520 | JQ591591 |
|  | *Canavalia rosea* (Sw.) DC. |   | HQ707524 | AB045793 |
|  | *Centrosema virginianum* (L.) Benth.  |   |   | AF308706 |
|  | *Pithecellobium keyense* Britton in Britton & Rose.  |   | KJ773009 | KJ773753 |
|  | *Sophora tomentosa* L.  |   |   | AY725481 |
| **Gentianaceae** | *Eustoma exaltatum* (L.) Salisb.  | *Eustoma grandiflorum* (Raf.) Shinners (1) | AJ010514 | Z68825 |
| **Goodeniaceae** | *Scaevola plumieri* (L.) Vahl  |   | JQ711557 | EU841126 |
| **Lauraceae** | *Cassytha filiformis* L.  |   | GU117739 | KJ773368 |
| **Malvaceae** | *Gossypium hirsutum* L.  |   | JN201459 | M77700 |
|  | *Malvaviscus arboreus* Cav. |   | AY589061 | JQ592522 |
|  | *Waltheria rotundifolia* Schrank | *Waltheria indica* L. (1) | JQ589310 | JQ594224 |
| **Nyctaginaceae** | *Commicarpus scandens* (L.) Standl. |   | FN868306 | FN868319 |
|  | *Okenia hypogaea* Schltdl. & Cham |   | FR775279 | FR775297 |
| **Papaveraceae** | *Argemone mexicana* L. |   | LN614543 | U86621 |
| **Passifloraceae** | *Passiflora foetida* L. |   |   | DQ123337 |
| **Poaceae** | *Aristida adscensionis* L. |   | AF164412 |   |
|  | *Cenchrus incertus* M.A. Curtis |   | HM850551 | HM849872 |
|  | *Dactyloctenium aegyptium* (L.) Willd |   | KF357745 | EF125106 |
|  | *Distichlis spicata* (L.) E. Greene.  |   | HE573968 | AY632363 |
|  | *Eustachys petraea* (Sw.) Desv. |   | KJ772779 |   |
|  | *Fimbristylis cymosa* R. Br. |   | KJ772789 | KJ773512 |
|  | *Fimbristylis spadicea* (L.) Vahl |   | KJ772791 | KJ773515 |
|  | *Melinis repens* (Willd.) Zizka  |   | HE574080 | EF125133 |
|  | *Sporobolus virginicus* (L.) Kunth |   | HE573975 | KJ773930 |
|  | *Bouteloua americana* (L.) Scribn. | *Bouteloua dimorpha* Columbus (1) | HE575864 |   |
|  | *Sporobolus pyramidatuss* (Lam.) Hitchc. | *Sporobolus atrovirens* (Kunth) Kunth (1) | JF729145 |   |
| **Polygonaceae** | *Coccoloba uvifera* (L.) L. |   | EF437996 | AJ312255 |
| **Portulacaceae** | *Portulaca oleracea* L. |   | DQ855850 | HM850279 |
| **Primulaceae** | *Bonellia macrocarpa* (Cav.) B.Ståhl & Källersjö  |   |   | KU176146 |
| **Rubiaceae** | *Ernodea littoralis* Sw. |   |   | AJ288601 |
| **Sapotaceae** | *Sideroxylon americanum* (Mill.) T.D.Penn. | *Sideroxylon celastrinum* (Kunth) T.D. Penn. (1) | KJ773145 | KJ773890 |
| **Solanaceae** | *Lycium carolinianum* Walter |   | AB036635 |   |
| **Surianaceae** | *Suriana maritima* L. |   | AY386950 | U07680 |
| **Verbenaceae** | *Lantana involucrata* L. |   | KJ012653 | KJ082380 |
|  | *Phyla nodiflora* (L.) Greene |   | FN773553 | KJ773739 |
| **Zygophyllaceae** | *Tribulus cistoides* L. |   | GU135025 | GU135188 |
| **Gymnosperms** | *Ephedra aspera* (3) |   | AY492010 | AF489532 |
|  | *Pinus ayacahuite* (3) |   | KP128381 | AY497221 |
|  | *Pinus caribaea* (3) |   | AY497280 | AY497244 |
|  | *Pinus patula* (3) |   | AB080944 | AY497248 |

Surrogate sources classified as: (1) species distributed in the same biogeographical region (Yucatan Peninsula) as the substituted species; (2) species distributed in different biogeographical region (outside the Yucatan Peninsula), but in coastal habitats. (3) used as the outgroup.

**Table S2.** Regression analysis among phylogenetic diversity (MPD) and climatic variables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phylogenetic diversity** | **Climatic variables**  | **F-stat** | **r2** | ***p*** |
|  | Temperature seasonality | 4.39 | 0.23 | 0.05 |
| MPD | Annual mean precipitation | 4.61 | 0.24 | < 0.05 |
|  | Annual mean temperature | 1.005 | 0.06 | 0.33 |

**Figure S1**



**Figure S2**

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