Supplementary Material

What do nectarivorous bats like? Nectar composition in Bromeliaceae with special emphasis on bat-pollinated species

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Supplementary Table S1: Overview of some main features of all examined Bromeliaceae species.

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| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Subfamily** | **Locality** | **Pollination type** | **Flower Color** | **Length of corolla tube [mm]** | **CAM or C3 (1)** |
| *Aechmea abbreviata* L.B.Sm. | Brom. | Gö | Tro (2) | yellow | 15 | CAM |
| *Aechmea aquilega* (Salisb.) Griseb. | Brom. | Gö | Tro (3) | yellow | 20 | CAM |
| *Aechmea bruggeri* Leme | Brom. | Heid | Tro (4) | purple | 10 | CAM |
| *Aechmea cylindrata* Lindm. | Brom. | Boc | Tro (5) | yellow | 15 | CAM |
| *Aechmea distichantha* Lem. | Brom. | Ber | Tro (6) | purple | 10 | CAM |
| *Aechmea eurycorymbus* Harms | Brom. | Ber | Tro (2) | orange | 25 | CAM |
| *Aechmea fasciata* (Lindl.) Baker | Brom. | Wup | Tro (7) | purple | 35 | CAM |
| *Aechmea* *gamosepala* Wittm. | Brom. | Wup | Tro (5) | blue | 25 | CAM |
| *Aechmea gracilis* Lindm. | Brom. | Gö | Tro (2) | purple | 30 | CAM |
| *Aechmea leptantha* (Harms) Leme & J.A.Siqueira | Brom. | Heid | Tro (8) | yellow | 35 | CAM |
| *Aechmea marauensis* Leme | Brom. | Heid | Tro (2) | purple | 25 | CAM |
| *Aechmea miniata discolor* (Beer) Beer ex Baker | Brom. | Wup | Tro (9) | blue | 20 | CAM |
| *Aechmea nudicaulis* (L.) Griseb. | Brom. | Boc | Tro (5) | yellow | 15 | CAM |
| *Aechmea penduliflora* Andre | Brom. | Heid | Tro (2) | orange | 20 | CAM |
| *Aechmea pyramidalis* Benth. | Brom. | Boc | Tro (2) | white | 5 | CAM |
| *Aechmea racinae* L.B.Sm. | Brom. | Wup | Tro (9) | yellow | 15 | CAM |
| *Aechmea recurvata* (Klotzsch) L.B.Sm. | Brom. | Gö | Tro (5) | purple | 35 | CAM |
| *Aechmea weilbachii* Didr. | Brom. | Gö | Tro (9) | purple | 20 | CAM |
| *Alcantarea geniculata* (Vell.) Harms | Till. | Heid | Tro (2) | yellow | 40 | C3 |
| ***Alcantarea imperialis* (Carriere) Harms** | **Till.** | Heid | **Chi (10)** | **matt-white** | **80** | **C3-CAM** |
| *Billbergia amoena* (G.Lodd.) Lindl. | Brom. | Gö | Tro (5) | green | 45 | CAM |
| *Billbergia brasiliensis* L.B.Sm. | Brom. | Gö | Tro (2) | blue | 25 | CAM |
| *Billbergia buchholtzii* Mez | Brom. | Heid | Tro (2) | purple | 35 | CAM |
| *Billbergia distachia* (Vell.) Mez | Brom. | Gö | Tro 3 | green | 50 | CAM |
| *Billbergia euphemiae* E.Morren | Brom. | Heid | Tro (11) | blue | 40 | C3 |
| *Billbergia fosteriana* L.B.Sm. | Brom. | Gö | Tro (2) | blue | 60 | CAM |
| *Billbergia morelii Brongn.* | Brom. | Wup | Tro (8) | blue | 50 | CAM |
| *Billbergia nutans* H.Wendl. ex Regel | Brom. | Wup | Tro (2) | green | 40 | CAM |
| *Billbergia pyramidalis* (Sims) Lindl. | Brom. | Gö | Tro (8) | red | 40 | CAM |
| *Billbergia reichardtii* Wawra | Brom. | Heid | Tro (2) | purple | 35 | CAM |
| *Billbergia viridiflora* H.Wendl. | Brom. | Ber | Tro (3) | green | 50 | CAM |
| *Billbergia vittata* Brongn. ex C.Morel | Brom. | Gö | Tro (12) | blue | 50 | CAM |
| *Deuterocohnia brevispicata* Rauh & L.Hrom. | Pitc. | Ber | Tro /Ent (13) | pink | 25 | CAM |
| *Deuterocohnia longipetala* (Baker) Mez | Pitc. | Ber | Tro /Ent (2) | pink | 40 | CAM |
| *Deuterocohnia meziana subsp. carmineoviridiflora (Rauh) N.Schutz* | Pitc. | Heid | Tro /Ent (2) | green | 50 | CAM |
| *Deuterocohnia recurvipetala* E.Gross | Pitc. | Heid | Tro /Ent (2) | yellow | 10 | CAM |
| *Dyckia choristaminea* Mez | Pitc. | Heid | Tro /Ent (14) | yellow | 10 | CAM |
| *Dyckia goehringii* E.Gross & Rauh | Pitc. | Heid | Tro /Ent (14) | orange | 10 | CAM |
| *Dyckia leptostachya* Baker | Pitc. | Heid | Tro /Ent (14) | yellow | 10 | CAM |
| *Dyckia vestita* Hassl. | Pitc. | Heid | Tro /Ent (14) | yellow | 10 | CAM |
| *Guzmania acorifolia* (Griseb.) Mez | Till. | Ber | Tro (2) | white | 15 | C3 |
| ***Guzmania calothyrsus* Mez** | **Till.** | **Wup** | **Chi (15)** | **matt-white** | **15** | **C3** |
| *Guzmania conifera* (André) André ex Mez | **Till.** | Gö | Tro (2) | yellow | 30 | C3 |
| ***Guzmania cylindrica* L.B.Sm.** | **Till.** | **Gö** | **Chi (2)** | **matt-white** | **50** | **C3** |
| ***Guzmania farciminiformis* H.Luther** | **Till.** | **Gö** | **Chi (2)** | **matt-white** | **15** | **C3** |
| ***Guzmania killipiana* L.B.Sm.** | **Till.** | **Wup** | **Chi (9)** | **matt-white** | **30** | **C3** |
| *Guzmania lingulata* (L.) Mez | Till. | Heid | Tro (16) | yellow | 50 | C3 |
| *Guzmania melinonis* Regel | Till. | Gö | Tro (15) | yellow | 30 | C3 |
| *Guzmania monostachia* (L.) Rusby ex Mez | Till. | Wup | Tro (3) | white | 25 | C3-CAM |
| *Guzmania osyana* (E.Morren) Mez | Till. | Gö | Tro (2) | yellow | 35 | C3 |
| *Guzmania rhonhofiana* Harms | Till. | Wien | Tro (2) | white | 25 | C3 |
| *Guzmania roseiflora* Rauh | Till. | Boc | Tro (2) | yellow | 15 | C3 |
| *Guzmania sanguinea* (Andre) Andre ex Mez | Till. | Gö | Tro (2) | yellow | 75 | C3 |
| *Guzmania variegata* L.B.Sm. | Till. | Ber | Tro (2) | red | 30 | C3 |
| *Guzmania wittmackii* (Andre) Andre ex Mez | Till. | Gö | Tro (2) | white | 90 | C3 |
| *Guzmania zahnii* (Hook.f.) Mez | Till. | Wup | Tro (9) | yellow | 30 | C3-CAM |
| *Hohenbergia correia-araujoi* E.Pereira & Moutinho | Brom. | Ber | Tro (2) | yellow | 10 | CAM |
| *Hohenbergia leopoldo-horstii* E.Gross. Rauh & Leme | Brom. | Gö | Tro (2) | purple | 10 | CAM |
| *Hohenbergia rosea* L.B.Sm. & Read | Brom. | Heid | Tro (2) | purple | 10 | CAM |
| *Hohenbergia stellata* Schult. & Schult.f. | Brom. | Ber | Tro (2) | purple | 10 | CAM |
| *Hohenbergia utriculosa* Ule | Brom. | Ber | Tro (2) | purple | 10 | CAM |
| *Lemeltonia narthecioides* (C.Presl) Barfuss & W.Till | Till. | Gö | Sphi (2) | white | 10 | C3-CAM |
| *Lemeltonia scaligera* (Mez & Sodiro) Barfuss & W.Till | Till. | Gö | Sphi (2) | white | 20 | C3 |
| *Neoregelia ampullacea* (E.Morren) L.B.Sm. | Brom. | Boc | Tro (11) | purple | 15 | CAM |
| *Neoregelia carolinae* (Beer) L.B.Sm. | Brom. | Wup | Psy (2) | purple | 35 | CAM |
| *Neoregelia compacta* (Mez) L.B.Sm. | Brom. | Gö | Tro (11) | pink | 15 | CAM |
| *Neoregelia farinosa* (Ule) L.B.Sm. | Brom. | Gö | Psy (2) | purple | 50 | CAM |
| *Neoregelia fosteriana* L.B.Sm. | Brom. | Gö | Tro (2) | purple | 20 | CAM |
| *Neoregelia johannis* (Carrière) L.B.Sm. | Brom. | Ber | Tro (8) | white | 25 | CAM |
| *Neoregelia kautskyi* E.Pereira | Brom. | Gö | Tro (2) | white | 20 | CAM |
| *Neoregelia laevis* (Mez) L.B.Sm. | Brom. | Heid | Tro (2) | white | 20 | CAM |
| *Neoregelia martinellii* W.Weber | Brom. | Ber | Tro (2) | white | 20 | CAM |
| *Neoregelia olens* (Hook.f.) L.B.Sm. | Brom. | Gö | Psy (2) | purple | 40 | CAM |
| *Neoregelia pineliana* (Lem.) L.B.Sm. | Brom. | Ber | Psy (2) | purple | 40 | CAM |
| *Neoregelia seideliana* L.B.Sm. & Reitz | Brom. | Gö | Psy (2) | purple | 40 | CAM |
| *Neoregelia wilsoniana* M.B.Foster | Brom. | Gö | Tro (2) | white | 30 | CAM |
| *Nidularium amazonicum* (Baker) Linden & É.Morren ex Lindm. | Brom. | Wup | Tro (2) | white | 20 | C3-CAM |
| *Nidularium innocentii* Lem. | Brom. | Gö | Tro (5) | white | 50 | C3 |
| *Nidularium procerum* Lindm. | Brom. | Wup | Tro (7) | blue | 20 | CAM |
| *Nidularium purpureum* Beer | Brom. | Wup | Tro (2) | pink | 20 | CAM |
| *Nidularium rutilans* É.Morren | Brom. | Gö | Tro (5) | pink | 10 | CAM |
| *Nidularium scheremetiewii* Regel | Brom. | Gö | Tro (11) | blue | 55 | CAM |
| *Nidularium utriculosum* Ule | Brom. | Wup | Tro (2) | blue | 30 | CAM |
| *Pitcairnia bromeliifolia* L\'Heritier | Pitc. | Gö | Tro (2) | yellow | 40 | C3 |
| *Pitcairnia chiapensis* Miranda | Pitc. | Gö | Tro (2) | yellow | 40 | C3-CAM |
| *Pitcairnia chiriquensis* L.B.Sm. | Pitc. | Ber | Tro (2) | orange | 45 | C3 |
| *Pitcairnia grafii* Rauh | Pitc. | Ber | Tro (2) | orange | 50 | C3 |
| ***Pitcairnia recurvata* (Scheidw.) K.Koch** | **Pitc.** | **Ber** | **Chi (2)** | **matt-white** | **80** | **C3** |
| *Pitcairnia rubronigriflora* Rauh | Pitc. | Ber | Tro (2) | red | 50 | C3 |
| *Pitcairnia sprucei* Baker | Pitc. | Ber | Tro (5) | red | 60 | C3 |
| *Pitcairnia suaveolens* Lindl. | Pitc. | Ber | Tro (2) | yellow | 50 | C3 |
| *Pitcairnia utcubambensis* Rauh | Pitc. | Wien | Tro (2) | red | 60 | C3 |
| *Pitcairnia xanthocalyx* Mart. | Pitc. | Ber | Tro (2) | yellow | 45 | C3 |
| ***Pseudalcantarea grandis* (Schltdl.) Pinzón & Barfuss** | **Pitc.** | **Ber** | **Chi (17)** | **matt-white** | **90** | **C3** |
| ***Pseudalcantarea macropetala* (Wawra) Pinzon & Barfuss** | **Pitc.** | **Gö** | **Chi (18)** | **matt-white** | **30** | **C3-CAM** |
| ***Pseudalcantarea viridiflora* (Beer) Pinzón & Barfuss** | **Pitc.** | **Gö** | **Chi (7)** | **matt-white** | **50** | **C3** |
| *Puya coerulea var. violacea* (Brongn.) L.B.Sm. & Looser | Pitc. | Heid | Tro (11) | blue | 45 | C3-CAM |
| *Puya densiflora* Harms | Pitc. | Heid | Tro (2) | purple | 80 | CAM |
| ***Puya ferruginea* (Ruiz & Pav.) L.B.Sm.** | **Pitc.** | **Heid** | **Chi (15)** | **matt-white** | **80** | **C3-CAM** |
| *Puya spathacea* (Griseb.) Mez | Pitc. | Heid | Tro (11) | blue | 30 | C3 |
| *Quesnelia edmundoi* L.B.Sm. | Brom. | Gö | Tro (2) | white | 20 | CAM |
| *Quesnelia lateralis* Wawra | Brom. | Gö | Tro (2) | blue | 35 | CAM |
| *Quesnelia quesneliana* (Brongn.) L.B.Sm. | Brom. | Gö | Tro (19) | purple | 30 | CAM |
| *Tillandsia achyrostachys* E.Morren | Till. | Gö | Tro (20) | green | 55 | CAM |
| *Tillandsia aeranthos* (Loisel.) Desf. | Till. | Gö | Tro (21) | purple | 20 | CAM |
| *Tillandsia caput-medusae* E.Morren | Till. | Gö | Tro (2) | purple | 40 | CAM |
| *Tillandsia circinnatoides* Matuda | Till. | Gö | Tro (2) | purple | 40 | CAM |
| *Tillandsia clavigera* Mez | Till. | Heid | Tro (2) | purple | 20 | C3 |
| *Tillandsia concolor* L.B.Sm. | Till. | Gö | Tro (2) | pink | 60 | CAM |
| *Tillandsia flabellata* Baker | Till. | Gö | Tro (9) | purple | 50 | CAM |
| *Tillandsia foliosa* M.Martens & Galeotti | Till. | Gö | Tro (2) | purple | 40 | CAM |
| *Tillandsia funckiana* Baker | Till. | Wien | Tro (2) | red | 45 | CAM |
| *Tillandsia gerdae* Ehlers | Till. | Gö | Tro (2) | purple | 45 | CAM |
| ***Tillandsia heterophylla* E.Morren** | **Till.** | **Gö** | **Chi (22)** | **matt-white** | **70** | **C3** |
| *Tillandsia ionantha* Planch. | Till. | Gö | Tro (2) | purple | 50 | CAM |
| *Tillandsia ixioides* Griseb. | Till. | Gö | Tro (2) | yellow | 25 | CAM |
| *Tillandsia makoyana* Baker | Till. | Heid | Tro (2) | purple | 35 | CAM |
| *Tillandsia malzinei* (E.Morren) Baker | Till. | Gö | Tro (2) | white | 50 | C3 |
| *Tillandsia polystachia* (L.) L. | Till. | Gö | Tro (2) | purple | 40 | CAM |
| *Tillandsia ponderosa* L.B.Sm. | Till. | Heid | Tro (9) | purple | 65 | C3-CAM |
| *Tillandsia propagulifera* Rauh | Till. | Heid | Tro (2) | purple | 30 | CAM |
| ***Tillandsia rauhii* L.B.Sm.** | **Till.** | **Ber** | **Chi (2)** | **purple** | **90** | **C3-CAM** |
| *Tillandsia roland-gosselinii* Mez | Till. | Boc | Tro (2) | purple | 30 | CAM |
| *Tillandsia tricolor* Schltdl. & Cham. | Till. | Ber | Tro (2) | purple | 40 | CAM |
| ***Vriesea bituminosa* Wawra** | **Till.** | **Ber** | **Chi (9)** | **matt-white** | **55** | **C3** |
| *Vriesea bleheri* Roeth & W. Weber | Till. | Gö | Tro (2) | yellow | 55 | C3 |
| *Vriesea drepanocarpa* (Baker) Mez | Till. | Gö | Tro (8) | yellow | 40 | C3 |
| *Vriesea dubia* (L.B.Sm.) L.B.Sm. | Till. | Gö | Tro (2) | white | 20 | C3 |
| *Vriesea eltoniana* E.Pereira & Ivo | Till. | Gö | Tro (2) | yellow | 30 | C3 |
| ***Vriesea fenestralis* Linden & Andre** | **Till.** | **Gö** | **Chi (5)** | **matt-white** | **40** | **C3-CAM** |
| *Vriesea friburgensis tucumanensis* (Mez) L.B.Sm. | Till. | Gö | Tro (5) | yellow | 35 | C3 |
| *Vriesea guttata* Linden & Andre | Till. | Wup | Tro (2) | yellow | 25 | C3 |
| *Vriesea maxoniana* (L.B.Sm.) L.B.Sm. | Till. | Ber | Tro (15) | yellow | 50 | C3 |
| ***Vriesea nanuzae* Leme** | **Till.** | **Heid** | **Chi (23)** | **matt-white** | **30** | **C3** |
| ***Vriesea racinae* L.B.Sm.** | **Till.** | **Ber** | **Chi (2)** | **matt-white** | **40** | **C3** |
| *Vriesea saundersii* (Carriere) E.Morren | Till. | Heid | Tro (2) | yellow | 50 | C3 |
| *Vriesea scalaris* E.Morren | Till. | Ber | Tro (9) | yellow | 55 | C3-CAM |
| ***Vriesea unilateralis* (Baker) Mez** | **Till.** | **Gö** | **Chi (9)** | **matt-white** | **30** | **C3** |
| *Wallisia cyanea* Barfuss & W.Till | Till. | Gö | Psy (2) | purple | 55 | C3 |
| *Wallisia lindeniana* (Regel) E.Morren | Till. | Gö | Psy (2) | blue | 45 | C3 |
| *Wallisia pretiosa* (Mez) Barfuss & W.Till | Till. | Gö | Psy (2) | purple | 52 | C3 |
| ***Werauhia gladioliflora* (H.Wendland) J.R.Grant** | **Till.** | **Gö** | **Chi (15)** | **matt-white** | **40** | **C3** |
| ***Werauhia nutans* (L.B.Sm.) J.R.Grant** | **Till.** | **Gö** | **Chi (9)** | **matt-white** | **35** | **C3** |
| *Werauhia patzeltii* (Rauh) J.R.Grant | Till. | Gö | Tro (2) | white | 15 | C3 |
| ***Werauhia pectinata* (L.B.Sm.) J.R.Grant** | **Till.** | **Gö** | **Chi (2)** | **matt-white** | **35** | **C3** |
| ***Werauhia sanguinolenta* (Linden ex Cogniaux & Marchal) J.R.Grant** | **Till.** | **Gö** | **Chi (9)** | **matt-white** | **30** | **C3** |
| ***Werauhia werckleana* (Mez) J.R.Grant** | **Till.** | **Gö** | **Chi (2)** | **matt-white** | **40** | **C3** |

Subfamily: Brom. = Bromelioideae, Till. = Tillandsioideae, Pitc. = Pitcairnioideae. Botanical garden/University: Ber = Berlin (Germany), Boc = Bochum (Germany), Gö = Göttingen (Germany), Heid = Heidelberg (Germany), Wien (Austria), Wup = Wuppertal (Germany). Pollination type: Chi = chiropterophilous, Sphi = sphingophilous, Tro = trochilophilous, Ent = entomophilous, Psy = psychophilous. Bold type = bat-pollinated bromeliads.

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