SUPPLIMENTRY MATERIAL

Appendix1

Investigated species from tropical to alpine region of Nepal Himalaya.

**Table 1.** Surface featuresof leaves of 54 tropical species from Nepal Himalaya are characterized by droplet contact angle and retention degrees, trichomes presence (+) or absence (–), infections (Inf) presence (+) or absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP–open places; US–forest understory), the altitude of collection (Alt) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=10).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Inf | La | Contact angle(°) | | Retention (°) | | Trichome | |
| AD | AB | AD | AB | AD | AB |
| *Ageratum conyzoides* L | 186 | Ast | US | - | + | 43.3 ±1.8 | 60.7 ±0.9 | 7.5 ±1.1 | 8.6 ±1.0 | + | + |
| *Alstonia scholaris (*L.) R.Br | 186 | Apo | US | - | - | 45.6 ±1.5 | 139.6 ±1.4 | 9.1 ±0.9 | 27.9 ±1.9 | - | + |
| *Anthocephalus chinensis (*Lam.) A. Rich. ex Walp. | 186 | Rub | US | - | + | 76.1 ±3.6 | 98.8 ±1.3 | 5.5 ±0.3 | 12.3 ±1.6 | - | + |
| *Bauhinia vahlii* Wigh.& Arn. | 230 | Fab | US | - | - | 144.6 ±1.4 | 147.9 ±1.2 | 37.8 ±2.5 | 13.7 ±0.9 | + | + |
| *Bauhinia variegata* L. | 230 | Fab | OP | - | - | 142.7 ±2.1 | 145.1 ±1.0 | 4.7 ±2.3 | 4.7 ±0.6 | - | - |
| *Bombax ceiba* L. | 186 | Mal | OP | + | + | 30.1 ±2.5 | 145.2 ±0.5 | 10.9 ±1.3 | 30.4 ±2.6 | - | - |
| *Bridelia retusa* (L.) Spreng. | 186 | Phy | US | + | + | 41.6 ±1.8 | 134.2 ±1.5 | 12.1 ±1.1 | 20.8 ±2.1 | + | + |
| *Calamus tenuis* Roxb. | 186 | Are | US | - | - | 55.7 ±3.4 | 102.0 ±1.0 | 9.0 ±1.2 | 10.3 ±1.4 | - | - |
| *Callicarpa macrophylla* Vahl. | 186 | Ver | US | + | + | 71.5 ±5.9 | 139.6 ±1.2 | 4.2 ±0.6 | 25.4 ±1.7 | - | - |
| *Cannabis sativa* L | 186 | Can | OP | - | - | 57.9 ±2.9 | 127.3 ±2.1 | 6.0 ±0.4 | 16.6 ±2.2 | - | - |
| *Capillipedium assimile* (Steud.) A. Camus | 503 | Poa | OP | - | - | 143.4 ±1.0 | 138.7 ±1.5 | 21.0 ±0.8 | 23.7 ±1.5 | - | - |
| *Carex* sp. | 503 | Cyp | OP | - | - | 50.6 ±2.4 | 40.4 ±2.3 | 3.9 ±0.5 | 2.6 ±0.4 | - | - |
| *Careya arborea* Roxb. | 230 | Lec | US | + | + | 67.0 ±2.2 | 101.3 ±2.8 | 2.2 ±0.4 | 8.0 ±1.2 | - | - |
| *Cassia fistula* L. | 186 | Fab | US | - | + | 27.9 ±1.6 | 137.3 ±2.1 | 4.2 ±0.7 | 32.3 ±3.1 | - | - |
| *Cinnamomum tamala* (Buch.- Ham.) Ness & Eberm. | 186 | Lau | US | + | + | 50.5 ±1.4 | 99.2 ±3.4 | 5.1 ±4.1 | 11.7 ±1.5 | - | - |
| *Colebrookea oppositifolia* Sm. | 230 | Lam | OP | + | + | 97.0 ±4.7 | 143.7 ±1.7 | 6.2 ±1.2 | 23.7 ±1.1 | + | + |
| *Cynodon dactylon* (L.) Pers. | 186 | Poa | OP | - | - | 130.2 ±1.8 | 122.8 ±2.4 | \* | \* | + | + |
| *Dalbergia latifolia* Roxb. | 503 | Fab | OP | + | + | 124.4 ±2.3 | 139.1 ±3.5 | 35.0 ±3.1 | 44.6 ±1.7 | - | - |
| *Dalbergia sissoo* Roxb.ex DC. | 186 | Fab | OP | + | - | 40.6 ±2.4 | 62.0 ±3.3 | 16.7 ±3.7 | 10.3 ±2.0 | - | + |
| *Dendrocalamus hamiltonii* Nees & Arn. ex Munro | 186 | Poa | OP | - | - | 47.2 ±1.5 | 139.0 ±1.8 | 8.2 ±0.7 | 21.1 ±2.6 | - | - |
| *Emblica officinalis* Gaertn | 186 | Eup | US | + | + | 142.7 ±1.3 | 145.9 ±1.2 | 25.5 ±1.9 | 21.3 ±1.5 | - | - |
| *Euphorbia hirta* L. | 186 | Eup | OP | - | + | 135.4 ±2.8 | 142.5 ±1.5 | 11.7 ±1.3 | 14.9 ±2.5 | - | + |
| *Euphorbia prostrata* Ait. | 186 | Eup | OP | - | + | 104.0 ±3.7 | 135.4 ±2.8 | 11.2 ±1.7 | 15.5 ±1.2 | - | - |
| *Ficus auriculata* Lour. | 186 | Mor | US | + | + | 40.6 ±2.4 | 76.6 ±6.5 | 6.8 ±0.6 | 22.0 ±2.2 | - | + |
| *Ficus benghalensis* L. | 186 | Mor | US | - | + | 92.4 ±4.7 | 102.3 ±3.0 | 10.8 ±1.1 | 12.2 ±1.2 | - | - |
| *Ficus benjamina* L. | 186 | Mor | US | + | + | 82.7 ±2.1 | 99.6 ±1.6 | 6.6 ±0.5 | 8.2 ±0.7 | - | - |
| *Ficus religiosa* L. | 186 | Mor | US | + | + | 78.8 ±2.2 | 112.5 ±4.1 | 17.4 ±2.8 | 20.0 ±2.6 | - | - |
| *Ficus semicordata* (Buch.- Ham.) ex Sm. | 186 | Mor | US | - | + | 46.6 ±1.5 | 74.8 ±4.3 | 10.9 ±1.0 | 11.0 ±2.1 | - | - |
| *Haldina cordifolia* (Roxb.) Ridsdale | 186 | Rub | US | + | + | 43.3 ±2.7 | 60.7 ±1.8 | 6.9 ±0.5 | 7.7 ±0.8 | - | - |
| *Holarrhena pubescens* (Buch.- Ham.) Wall. ex G.Don | 186 | Apo | US | + | + | 99.4 ±1.9 | 67.9 ±1.8 | 7.4 ±0.9 | 11.9 ±0.9 | - | - |
| *Ipomoea fistulosa* Mart. exChoisy | 186 | Con | OP | + | - | 76.1 ±3.6 | 75.3 ±3.4 | 6.4 ±1.0 | 7.4 ±1.0 | - | - |
| *Lagerstroemia parviflora* Roxb. | 186 | Lyt | US | - | + | 97.2 ±4.8 | 134.5 ±2.6 | 8.2 ±1.1 | 23.7 ±1.5 | - | - |
| *Mallotus philippinensis* Muell.- Arg. | 186 | Eup | US | + | - | 34.0 ±3.4 | 45.9 ±2.6 | 2.7 ±0.5 | 6.6 ±0.8 | - | - |
| *Melia azederach* L. | 186 | Mel | US | - | + | 74.6 ±1.7 | 79.2 ±1.7 | 4.5 ±0.6 | 6.7 ±0.6 | - | - |
| *Millettia extensa* (Benth.) Baker | 230 | Fab | US | - | + | 125.2 ±2.9 | 139.2 ±1.3 | 38.9 ±3.9 | 32.0 ±2.8 | - | - |
| *Mimosa pudica* L. | 186 | Fab | OP | - | - | 127.4 ±2.8 | 126.7 ±2.1 | \* | \* | + | + |
| *Murraya koenigii* (L.) Spreng. | 230 | Rut | US | - | + | 72.7 ±6.6 | 103.8 ±3.7 | 3.7 ±0.3 | 13.5 ±1.0 | - | - |
| *Oxalis corniculata* L. | 186 | Oxa | OP | - | + | 135.6 ±1.8 | 139.7 ±1.4 | 22.6 ±4.3 | 17.9 ±3.3 | + | + |
| *Phlogacanthus pubinervius* T.Ander. | 230 | Aca | US | - | + | 66.3 ±3.0 | 91.4 ±1.2 | 7.0 ±0.7 | 3.4 ±0.4 | - | - |
| *Phoenix humilis* Royle ex Becc | 503 | Are | US | - | - | 76.0 ±3.6 | 76.2 ±3.6 | 7.3 ±0.3 | 5.0 ±0.3 | - | - |
| *Phyllanthus niruri* L. | 186 | Phy | OP | + | + | 145.5 ±1.1 | 143.9 ±3.2 | 9.3 ±1.9 | 7.9 ±0.9 | - | - |
| *Poa* sp. | 230 | Poa | OP | - | - | 135.5 ±1.5 | 129.4 ±2.3 | 25.2 ±2.1 | 24.7 ±1.4 | + | + |
| *Shorea robusta* Gaertn | 186 | Dip | US | + | + | 55.6 ±3.3 | 96.6 ±2.8 | 5.5 ±1.1 | 14.2 ±1.0 | - | - |
| *Solanum nigrum* L. | 186 | Sol | US | - | + | 67.0 ±2.0 | 89.9 ±2.6 | 7.8 ±1.0 | 15.5 ±1.8 | + | + |
| *Syzygium cumini* (L.) Skeels | 186 | Myr | US | - | + | 57.0 ±6.1 | 55.7 ±8.1 | 4.3 ±1.0 | 6.7 ±1.3 | - | - |
| *Tectona grandis* L. F. | 186 | Ver | US | + | + | 34.7 ±1.5 | 83.1 ±1.9 | 9.3 ±0.8 | 5.6 ±0.7 | - | - |
| *Terminalia alata* Heyne ex Roth | 186 | Com | US | - | + | 52.4 ±3.2 | 56.4 ±2.8 | 4.4 ±0.8 | 14.5 ±1.2 | - | - |
| *Terminalia bellerica* (Gaertn.) Roxb. | 186 | Com | US | + | + | 44.3 ±1.3 | 70.2 ±5.6 | 9.3 ±0.9 | 12.1 ±1.0 | - | - |
| *Thunbergia coccinea* Wall.ex D.Don | 186 | Aca | US | - | - | 46.9 ±1.9 | 37.2 ±1.1 | 11.9±1.5 | 7.7 ±1.1 | - | - |
| *Thysanolaena maxima* (Roxb.) Kuntze | 186 | Poa | OP | - | - | 63.4 ±1.8 | 140.5 ±0.9 | 7.9 ±0.4 | 20.7 ±3.6 | - | - |
| *Trewia nudiflora* L. | 186 | Eup | US | + | - | 48.1 ±0.9 | 40.2 ±2.8 | 2.7 ±0.4 | 7.5±0.8 | - | + |
| *Wendlandia coriacea* (Wall.) DC. | 230 | Rub | US | - | + | 52.4 ±3.4 | 99.3 ±2.5 | 4.5 ±0.7 | 12.3 ±0.7 | - | - |
| *Woodfordia fruticosa* (L.) Kurz | 186 | Lyt | US | + | + | 83.4 ±3.6 | 121.6 ±3.0 | 6.4 ±0.8 | 27.2 ±2.4 | - | + |
| *Zizyphus rugosa* Lam. | 186 | Rha | US | - | + | 61.8 ±2.1 | 143.5 ±1.0 | 8.5 ±0.7 | 27.8 ±3.7 | - | - |

\* calculation not possible

**Table 2.** Surface features of leaves of 60 subtropical species from Nepal Himalaya are characterized by droplet contact angle and retention degrees, trichomes presence (+) or absence (–), infections (Inf) presence (+) or absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP–open places; US–forest understory), the altitude of collection (Alt) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=10).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Inf | La | Contact angle(°) | | Retention (°) | | Trichome | |
| AD | AB | AD | AB | AD | AB |
| *Aconogonum molle* (D.Don) H. Hara | 1958 | Pol | US | - | + | 80.7±5.0 | 150.0±1.5 | 15. 1±0.8 | 9.2±0.9 | + | + |
| *Ageratum conyzoides* L. | 1322 | Ast | US | - | + | 50.3±1.7 | 48.5±2.2 | 3.8 ±0.4 | 3.4 ±0.4 | + | + |
| *Albizia julibrissin* Durazz. | 1905 | Fab | US | - | + | 135.3±1.9 | 140.3± 2.4 | 28.5 ±2.7 | 12.0 ±1.0 | - | - |
| *Alnus nepalensis* D.Don | 1467 | Bet | US | + | + | 48.7±4.6 | 136.3±1.6 | 15.7 ±1.6 | 45.6 ±3.3 | - | + |
| *Arisaema consanguineum* Schott. | 1890 | Ara | US | - | + | 140.7±2.0 | 84.9±3.4 | 5.2 ±0.4 | 14.2 ±1.7 | - | - |
| *Artemisia japonica* Thunb. | 1322 | Ast | OP | - | + | 51.0±3.3 | 138.6 ±0.9 | 19.5 ±1.7 | 19.5 ±0.9 | + | + |
| *Berberis aristata* DC. | 1467 | Ber | OP | - | + | 141.0±1.4 | 146.9±1.8 | 35.3 ±2.6 | 11.4 ±1.1 | - | - |
| *Bidens bipinnata* L. | 1322 | Ast | US | - | + | 78.2 ±2.6 | 87.3 ±3.0 | 7.1 ±1.0 | 6.8 ±0.8 | - | + |
| *Boehmeria platyphylla* D.Don | 1759 | Urt | US | + | - | 56.5 ±2.9 | 71.8±2.2 | 4.4 ±0.6 | 14.2 ±1.5 | + | - |
| *Camellia sinensis* (L.) Kuntze | 1345 | The | OP | - | + | 96.9 ±2.6 | 88.5±3.5 | 12.9 ±0.8 | 11.6 ±0.8 | - | - |
| *Cannabis sativa* L. | 1322 | Can | OP | - | - | 78.1 ±2.1 | 136.4 ±1.1 | 7.3 ±0.8 | 20.1 ±1.1 | - | - |
| *Capillipedium assimile* (Steud.) A. Camus | 1958 | Poa | OP | - | - | 124.3 ±0.8 | 130.7 ±2.0 | \* | \* | - | - |
| *Carex* sp. | 1958 | Cyp | OP | - | - | 62.3 ±2.4 | 78.5 ± 1.2 | 3.4 ±0.5 | 3.6 ±0.6 | - | - |
| *Castanopsis indica* (Roxb.) Miq. | 1467 | Fag | US | - | + | 40.5 ± 3.3 | 141.4 ±1.1 | 1.8 ±0.2 | 31.3 ±1.6 | + | + |
| *Castanopsis tribuloides* (Sm.) A.DC. | 1759 | Fag | US | - | + | 70.8 ±2.5 | 101.7 ±2.8 | 3.6 ±0.4 | 8.3 ±1.4 | - | - |
| *Chenopodium album* L. | 1322 | Che | OP | - | - | 141.0 ±1.6 | 141.0 ±2.4 | 21.8 ±1.6 | 11.2 ±0.8 | - | - |
| *Cinnamomum camphora* (L.) J. Pres. | 1467 | Lau | US | - | + | 51.6 ±2.7 | 97.8 ±7.0 | 4.3 ±0.4 | 14.4 ±1.1 | - | - |
| *Coriaria nepalensis* Wall. | 1759 | Cor | US | - | + | 55.5 ±2.4 | 93.1 ±3.5 | 4.1 ±0.6 | 9.8 ±0.9 | - | - |
| *Cynodon dactylon* (L.) Pers. | 1322 | Poa | OP | - | - | 142.6 ±2.1 | 134.5 ±1.9 | \* | \* | + | + |
| *Datura stramonium* L. | 1322 | Sol | US | - | + | 87.6 ±3.4 | 103.5 ±1.6 | 6.5 ±1.5 | 4.3 ±0.6 | - | - |
| *Drymaria diandra* Blume | 1322 | Car | OP | - | - | 133.9 ±1.2 | 138.9 ±1.7 | 21.2 ±1.8 | 23.4 ±2.3 | - | - |
| *Erythrina arborescens* Roxb. | 1890 | Fab | US | - | + | 97.9 ±2.1 | 137.7 ±1.4 | 13.8 ±1.0 | 24.4 ±1.4 | + | + |
| *Eupatorium adenophorum* Spreng. | 1322 | Ast | US | - | + | 96.5 ±5.1 | 83.0 ±2.3 | 14.8 ±1.0 | 2.4 ±0.5 | - | + |
| *Euphorbia milii* Des Moul. | 1528 | Eup | OP | - | - | 128.9 ±2.9 | 113.4 ±5.6 | 23.0 ±2.6 | 25.2 ±1.6 | - | - |
| *Ficus religiosa* L. | 1322 | Mor | US | + | + | 90.9 ±1.6 | 104.9 ±5.4 | 7.6 ±1.4 | 12.0 ±1.1 | - | - |
| *Ficus religiosa* L. | 1322 | Pol | US | + | + | 31.9 ±1.3 | 53.9 ±4.6 | 15.5 ±0.8 | 15.8 ±1.4 | + | + |
| *Galinsoga parviflora* Cav. | 1322 | Ast | US | + | + | 79.5 ±5.2 | 94.6 ±3.6 | 10.7 ±1.2 | 10.4 ±1.5 | + | + |
| *Gaultheria fragrantissima* Wall. | 1759 | Eri | US | - | + | 57.5 ±2.3 | 54.3 ±2.2 | 4.8 ±0.7 | 5.9 ±0.7 | - | - |
| *Geranium nepalense* Sweet | 1322 | Ger | US | + | + | 54.0 ±3.8 | 79.4 ±6.1 | 12.9 ±1.7 | 14.6 ±0.9 | + | + |
| *Hedera nepalensis* K.Koch | 1759 | Aral | US | - | + | 48.6 ±1.2 | 69.4 ±1.9 | 2.9 ±0.4 | 2.8 ±0.3 | - | - |
| *Hydrocotyle sibthorpioides* Lam. | 1322 | Api | US | - | + | 32.5 ±1.5 | 28.8 ±1.8 | 9.0 ±1.4 | 8.0 ±0.8 | - | - |
| *Ilex diphyrena* Wall. | 1958 | Aqu | US | - | + | 56.9 ±1.4 | 72.3 ±4.3 | 5.0 ±0.6 | 5.0 ±0.4 | - | - |
| *Jasminum humile* L. | 1759 | Ole | US | - | + | 52.1 ±1.5 | 71.4 ±2.8 | 3.6 ±0.4 | 3.5 ±0.5 | - | - |
| *Lantana camara* L. | 1322 | Ver | OP | - | + | 44.1 ±2.5 | 54.3 ±2.0 | 4.1 ±0.6 | 5.1 ±0.6 | - | + |
| *Leucosceptrum canum* Sm. | 1759 | Lam | US | - | - | 50.2 ±2.0 | 137.3 ±1.6 | 2.8 ±0.6 | 22.8 ±2.0 | - | - |
| *Lonicera angustifolia* Wall.ex DC. | 1890 | Cap | US | - | + | 68.1 ±2.4 | 75.9 ±3.3 | 5.4 ±0.5 | 7.2 ±0.5 | + | + |
| *Lyonia ovalifolia* (Wall.) Drude | 1467 | Eri | US | - | + | 51.3 ±4.7 | 80.8 ±4.0 | 5.3 ±0.6 | 8.0 ±1.4 | - | - |
| *Maesa chisia* Buch.- Ham.ex D.Don | 1467 | Myrs | US | - | + | 56.4 ±3.9 | 55.6 ±3.9 | 6.6 ±1.1 | 7.2 ±0.8 | - | - |
| *Maesa macrophylla* (Wall.) A. DC. | 1467 | Myrs | US | + | + | 84.9 ±4.5 | 112.7 ±3.3 | 13.1 ±0.7 | 21.5 ±2.2 | + | + |
| *Mahonia nepaulensis* DC. | 1958 | Ber | US | - | + | 80.9 ±4.1 | 72.3 ±2.6 | 6.8 ±0.7 | 4.8 ±0.6 | - | - |
| *Myrica esculenta* Buch.-Ham.ex D.Don | 1467 | Myri | US | - | + | 48.8 ±2.4 | 50.7 ±3.3 | 4.5 ±0.6 | 2.0 ±0.2 | - | - |
| *Oxalis corniculata* L. | 1322 | Oxa | OP | - | + | 144.2 ±1.0 | 141.9 ±1.6 | 12.0 ±1.0 | 10.4 ±1.6 | + | + |
| *Oxalis latifolia* Humb. | 1322 | Oxa | OP | - | + | 147.5 ±1.4 | 148.3 ±1.5 | 18.3±2.8 | 11.1 ±1.1 | + | + |
| *Pinus roxburghii* Sarg. | 1467 | Pin | OP | - | - | 83.3 ±5.0 | 64.6 ±3.6 | \* | \* | - | - |
| *Plantago major* L. | 1322 | Pla | US | - | + | 35.4 ±1.5 | 55.5 ±4.0 | 2.4 ±0.4 | 0.4 ±0.0 | - | + |
| *Potentilla* sp. | 1958 | Ros | OP | - | + | 129.7 ±4.0 | 135.7 ±1.7 | 9.9 ±1.1 | 23.8 ±2.5 | + | + |
| *Prunus cerasoides* D.Don | 1467 | Ros | US | - | + | 34.9 ±3.1 | 81.7 ±3.1 | 1.9 ±0.3 | 8.3 ±0.7 | + | + |
| *Quercus semecarpifolia* Sm. | 1958 | Fag | US | - | + | 60.7 ±2.4 | 64.2 ±2.6 | 6.7 ±1.1 | 8.8 ±0.9 | - | - |
| *Rhododendron arboreum* Sm. | 1467 | Eri | US | - | + | 70.2 ±2.7 | 102.8 ±3.9 | 5.0 ±0.7 | 16.1 ±2.0 | - | - |
| *Rubus ellipticus* Sm. | 1467 | Ros | OP | - | + | 76.8 ±2.8 | 132.9 ±3.7 | 3.5 ±0.5 | 14.5 ±0.9 | + | + |
| *Rubus paniculatus* Sm. | 1759 | Ros | OP | + | + | 46.2 ±1.9 | 149.8 ±0.8 | 5.9 ±0.6 | 23.1 ±1.7 | - | + |
| *Sambucus hookeri* Rehder | 1322 | Sam | US | - | + | 50.2 ±1.6 | 42.0 ±2.2 | 4.6 ±0.6 | 8.9 ±0.8 | + | + |
| *Sapium insigne* (Royle) Benth.ex Hook.F. | 1467 | Eup | US | - | + | 45.3 ±2.7 | 91.0 ±3.4 | 6.9 ±1.2 | 24.0 ±3.3 | - | - |
| *Schima wallichii* (DC.) Korth. | 1467 | The | US | - | + | 62.7 ±3.0 | 103.2 ±6.5 | 11.6 ±0.8 | 11.6 ±0.9 | - | + |
| *Solanum nigrum* L. | 1322 | Sol | US | + | + | 50.9 ±2.5 | 76.3 ±5.3 | 6.4 ±0.9 | 16.8 ±1.3 | + | + |
| *Stellaria media* (L.) Vill. | 1322 | Car | OP | - | + | 81.0 ±4.6 | 96.2 ±2.1 | 5.7 ±0.6 | 9.1 ±1.1 | - | - |
| *Thalictrum* sp. | 1759 | Ran | US | - | - | 145.0 ±1.8 | 145.2 ±2.1 | 15.1 ±2.4 | 11.3 ±1.4 | + | + |
| *Trifolium repens* L. | 1322 | Fab | OP | - | + | 140.5 ±2.2 | 57.8 ±1.6 | 23.6 ±2.4 | 15.5 ±1.2 | + | + |
| *Zanthoxylum armatum* DC. | 1759 | Rut | US | + | + | 61.3 ±2.5 | 65.1 ±3.5 | 5.1 ±0.5 | 5.7 ±0.6 | - | - |
| *Zizyphus incurva* Roxb. | 1759 | Rha | US | + | + | 71.1 ±2.3 | 73.5 ±8.9 | 7.1±0.6 | 7.0 ±0.8 | - | - |

\* calculation not possible

**Table 3.** Surface features of leaves of 40 temperate species from Nepal Himalaya are characterized by droplet contact angle and retention degrees, trichomes presence (+) or absence (–), infections (Inf) presence (+) or absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP\*–dry open places; US#–wet forest understory), the altitude of collection (Alt) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=10).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Inf | La | Contact angle(°) | | Retention (°) | | Trichome | |
| AD | AB | AD | AB | AD | AB |
| *Acer campbellii* Hook. f . & Thoms. ex Hiern | 2794 | Ace | US# | - | + | 61.3 ±5.6 | 109.2 ±1.3 | 6.0± 1.1 | 12.0 ±0.6 | + | + |
| *Aesculus indica* (Colebr.ex cambess.) Hook. | 2240 | Hyp | OP\* | - | + | 73.5 ±3.0 | 139.1 ±1.7 | 12.1 ±1.1 | 15.0 ±1.9 | - | - |
| *Astragalus grahamianus* Royle ex. Benth. | 2747 | Fab | OP\* | - | - | 136.2 ±2.2 | 142.5 ±1.6 | \* | \* | - | - |
| *Astragalus* sp 1 | 2710 | Fab | OP\* | - | - | 143.9 ±3.0 | 141.3 ±2.3 | \* | \* | - | - |
| *Astragalus* sp 2 | 2794 | Fab | US# | - | - | 126.3 ±3.3 | 117.0 ±3.2 | \* | \* | - | - |
| *Betula alnoides* Buch.-Ham. Ex D.Don | 2794 | Bet | US# | + | + | 110.3 ±1.1 | 108.3 ±1.1 | 12.3 ±0.7 | 14.7 ±0.9 | + | - |
| *Caragana brevifolia* Kom. | 2520 | Fab | OP\* | - | - | 134.5 ±1.5 | 140.5 ±1.8 | 22.5 ±2.0 | 12.0 ±0.8 | + | + |
| *Chenopodium album* L. | 2794 | Che | US# | - | - | 140.7 ±2.3 | 135.7 ±1.1 | 30.9 ±2.2 | 30.7 ±2.9 | - | - |
| *Clematis tibetana* Kuntze | 2747 | Ran | OP\* | - | - | 139.6 ±2.8 | 140.1 ±3.4 | 21.3 ±1.2 | 28.9 ±1.6 | + | - |
| *Cotoneaster affinis* Lindl. | 2794 | Ros | US# | - | - | 72.8 ±8.9 | 130.4 ±2.9 | 14.9 ±1.8 | 30.4 ±2.1 | - | + |
| *Cotoneaster affinis* Lindl. | 2747 | Ros | OP\* | - | - | 123.2 ±3.8 | 136.8 ±2.9 | 30.9 ±3.4 | 45.0 ±2.4 | - | + |
| *Cotoneaster microphyllus* Wall. ex Lindl. | 2747 | Ros | OP\* | - | + | 141.1 ±4.0 | 140.6 ±3.1 | 40.8 ±2.2 | 41.1±4.2 | + | + |
| *Cotoneaster microphyllus* Wall. ex Lindl. | 2794 | Ros | US# | - | + | 59.1 ±2.2 | 112.8 ±5.0 | 6.9 ±0.9 | 44.7 ±3.1 | + | + |
| *Cupressus torulosa* D.Don | 2690 | Cup | OP\* | - | - | 134.0 ±2.6 | \* | \* | \* | - | - |
| *Daphne bholua* Buch.-Ham.ex D.Don | 2794 | Thy | US# | - | + | 53.8 ±0.4 | 104.8 ±2.5 | 6.4 ±0.7 | 12.9 ±0.5 | - | - |
| *Ephedra gerardiana* Wall. ex Stapf | 2747 | Eph | OP\* | - | - | 112.0 ±7.4 | \* | \* | \* | - | - |
| *Euphorbia wallichii* Hook. f. | 2794 | Eup | US# | - | - | 140.0 ±2.3 | 145.0 ±0.9 | 34.7 ±3.3 | 23.5 ±1.4 | - | - |
| *Ilex dipyrena* Wall. | 2794 | Aqu | US# | - | + | 75.3 ±2.7 | 82.2 ±2.7 | 7.7 ±1.2 | 5.4 ±0.9 | - | - |
| *Incarvillea arguta* (Royle) Royle | 2240 | Big | OP\* | - | - | 92.3 ±3.3 | 92.1 ±4.7 | 11.2 ±0.8 | 9.8 ±1.2 | - | - |
| *Juglans regia* L. | 2240 | Jug | OP\* | - | + | 100.7 ±3.9 | 96.5 ±2.7 | 9.7 ±1.1 | 11.0 ±1.1 | - | - |
| *Lyonia ovalifolia* (Wall.) Drude | 2794 | Eri | US# | - | + | 60.3 ±1.6 | 147.5 ±0.6 | 8.7 ±1.2 | 21.4 ±2.6 | - | - |
| *Mentha* sp. | 2705 | Lam | OP\* | - | - | 124.5 ±6.1 | 127.9 ±3.0 | 16.9 ±1.0 | 25.4 ±1.9 | + | + |
| *Oxytropis* williamsii Vass. | 2747 | Fab | OP\* | - | + | 135.4 ±1.6 | 143.0 ±1.6 | 40.8 ±2.2 | 41.1 ±4.2 | + | + |
| *Pinus wallichiana* A.B. Jacks. | 2750 | Pin | OP\* | - | - | 67.4 ±5.4 | 84.3 ±2.9 | \* | \* | - | - |
| *Piptanthus nepalensis* (Hook.) D.Don | 2794 | Fab | US# | - | - | 85.2 ±5.9 | 128.1 ±2.1 | 10.1 ±1.7 | 35.9 ±4.1 | + | + |
| *Plantago major* L. | 2747 | Pla | OP\* | - | + | 82.7 ±5.1 | 82.2 ±4.1 | 10.8 ±1.0 | 13.3 ±1.5 | + | + |
| *Quercus lanata* Sm. | 2794 | Fag | US# | - | + | 83.5 ±1.9 | 139.0 ±1.7 | 7.3 ±1.4 | 20.2 ±1.4 | + | + |
| *Quercus semecarpifolia* Sm. | 2794 | Fag | US# | - | + | 64.7 ±1.7 | 78.3 ±4.7 | 10.3 ±1.6 | 11.7 ±2.2 | + | + |
| *Rhododendron arboreum* Sm. | 2794 | Eri | US# | - | - | 66.4 ±5.2 | 137.8 ±2.6 | 8.0 ±1.3 | 33.0 ±4.8 | - | - |
| *Rhododendron barbatum* Wall. ex G.Don | 2794 | Eri | US# | - | - | 63.9 ±3.2 | 129.0 ±2.0 | 11.5 ±0.5 | 46.9 ±3.2 | - | - |
| *Ribes himalense* Royle ex Decne. | 2794 | Gro | US# | - | - | 99.0 ±2.3 | 114.5 ±1.5 | 14.7 ±1.1 | 25.5 ±2.4 | + | + |
| *Rosa sericea* Lindl. | 2747 | Ros | OP\* | - | - | 141.2 ±2.7 | 138.3 ±2.3 | 9.3 ±0.6 | 20.9 ±0.7 | - | + |
| *Taraxacum officinale* Wigg. | 2810 | Ast | OP\* | - | + | 76.2 ±1.9 | 86.9 ±3.7 | 14.5 ±1.0 | 11.0 ±0.5 | - | - |
| *Taxus wallichiana* Zucc. | 2520 | Tax | OP\* | - | - | 81.3 ±4.2 | 134.1 ±0.9 | \* | \* | - | - |
| *Thalictrum reniforme* Wall. | 2747 | Ran | OP\* | - | - | 135.0 ±2.2 | 135.3 ±2.0 | 10.6 ±2.3 | 16.1 ±0.9 | - | + |
| *Thalictrum virgatum* Hook.f.et Thomes | 2794 | Ran | US# | - | - | 142.7±2.4 | 148.9 ±1.5 | 30.5 ±3.1 | 20.1 ±1.9 | - | - |
| *Thamnocalamus aristatus* (Gamble) *E.G.Campus* | 2794 | Poa | US# | - | - | 114.7 ±2.5 | 130.7 ±1.8 | 28.0 ±2.7 | 28.6 ±3.1 | - | - |
| *Trifolium repens* L. | 2794 | Fab | US# | - | + | 143.6 ±1.4 | 53.0 ±2.3 | 22.8 ±2.7 | 9.9 ±1.6 | - | - |
| *Tsuga dumosa* (D.Don) Eichler | 2794 | Pin | US# | - | - | 56.6 ±2.7 | 119.6 ±1.6 | \* | \* | - | - |
| *Tsuga dumosa* (D.Don) Eichler | 2520 | Pin | OP\* | - | - | 121.7±2.2 | 141.0 ±1.8 | \* | \* | - | - |

\*calculation not possible

**Table 4.** Surface features of leaves of 42 subalpine species from Nepal Himalaya are characterized by droplet contact angle and retention degrees, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP\*–dry open places; OP# –wet open places), the altitude of collection (Alt) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=10).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Inf | La | Contact angle(°) | | Retention (°) | | Trichome | |
| AD | AB | AD | AB | AD | AB |
| *Abies spectabilis* (D.Don) Mirb. | 3400 | Pin | OP\* | - | - | 126.6 ±2.3 | 128.4 ±3.2 | \* | \* | - | - |
| *Androsace muscoidea* Duby | 3505 | Pri | OP\* | - | - | 124.9 ±1.8 | 141.6 ±1.8 | \* | \* | + | + |
| *Astragalus condolleanus* Royle ex Benth. | 3225 | Fab | OP\* | - | + | 138.4 ±2.2 | 140.3 ±1.9 | 33.3 ±2.9 | 29.3 ±2.1 | - | + |
| *Astragalus grahamianus* Royle ex Benth. | 3010 | Fab | OP\* | - | - | 141.0 ±1.1 | 137.5 ±1.4 | \* | \* | + | + |
| *Astragalus* sp. | 3868 | Fab | OP# | - | + | 127.7 ±1.1 | 142.6 ±1.5 | 22.5 ±1.2 | 34.1 ±2.1 | - | + |
| *Berberis angulosa* Wall.ex Hook f. & Thoms. | 3545 | Ber | OP\* | - | - | 114.3 ±1.8 | 107.4 ±4.5 | 9.0 ±0.8 | 4.6 ±1.0 | - | - |
| *Berberis* sp. | 3868 | Ber | OP# | - | - | 135.7 ±3.9 | 144.3 ±3.9 | 21.6 ±1.0 | 25.6 ±1.5 | - | - |
| *Chenopodium album* L. | 3396 | Che | OP\* | - | - | 139.0 ±2.5 | 141.0 ±3.1 | 12.6 ±1.0 | 16.0 ±1.3 | - | - |
| *Cotoneaster microphyllus* Wall. ex Lindl. | 3868 | Ros | OP# | - | - | 82.7 ±3.4 | 132.1 ±1.5 | 12.3 ±1.0 | 26.3 ±1.6 | - | - |
| *Ephedra gerardiana* Wall. ex Stapf | 3010 | Eph | OP\* | - | - | 116.5 ±6.6 | \* | \* | \* | - | - |
| *Euphorbia wallichii* Hook.f. | 3868 | Eup | OP# | - | - | 146.8 ±1.7 | 144.0 ±0.7 | 27.9 ±1.9 | 26.6 ±2.1 | - | - |
| *Gentiana* sp. | 3540 | Gen | OP\* | - | - | 84.7 ±2.0 | 91.8 ±2.7 | 9.5 ±1.1 | 9.9 ±1.2 | - | - |
| *Geranium pratense* L. | 3505 | Ger | OP\* | - | + | 76.2 ±3.1 | 92.8 ±3.0 | 9.6 ±1.3 | 11.1 ±1.4 | - | - |
| *Geranium* sp. | 3482 | Ger | OP# | - | + | 58.5 ±3.1 | 124.6 ±2.7 | 27.1 ±2.8 | 21.6 ±1.7 | + | + |
| *Iris decora* Wall. | 3868 | Iri | OP# | - | - | 135.1 ±1.7 | 130.9 ±1.8 | 20.6 ±1.5 | 22.8 ±2.7 | - | - |
| *Iris kemaonensis* D.Don ex Royle | 3540 | Iri | OP\* | - | - | 143.4 ±2.2 | 137.7 ±2.8 | 6.4 ±0.5 | 4.5 ±0.8 | - | - |
| *Juniperus communis* L. | 3803 | Cup | OP\* | - | - | 84.1 ±2.2 | 125.9 ±1.3 | \* | \* | - | - |
| *Lancea tibetica* Hook. f. & Thoms. | 3540 | Scr | OP\* | - | + | 58.7 ±5.3 | 63.7 ±2.7 | 5.5 ±1.3 | 3.9 ±0.4 | + | + |
| *Leontopodium monocephalum* Edgew. | 3540 | Ast | OP\* | - | - | 139.6 ±1.3 | 145.3 ±1.1 | 28.4 ±1.0 | 26.3 ±0.8 | + | + |
| *Medicago falcata* L. | 3225 | Fab | OP\* | - | - | 132.9 ±0.8 | 138.6 ±2.3 | \* | \* | - | - |
| *Mentha* sp. | 3395 | Lam | OP\* | - | - | 139.8 ±1.4 | 141.9 ±1.7 | \* | \* | + | + |
| *Oxytropis microphylla* (Pall.)DC. | 3010 | Fab | OP\* | - | - | 140.0 ±2.5 | 123.0 ±2.7 | \* | \* | + | + |
| *Pinus wallichiana* A.B. Jacks. | 3803 | Pin | OP\* | - | - | 93.5 ±3.4 | 117.4 ±1.5 | \* | \* | - | - |
| *Piptanthus nepalensis* (Hook.) D.Don | 3868 | Fab | OP# | - | - | 84.6 ±2.0 | 131.6 ±1.3 | 9.0 ±1.0 | 25.4 ±1.8 | - | + |
| *Plantago major* L. | 3868 | Pla | OP# | - | + | 73.4 ±3.1 | 40.9 ±2.7 | 3.8 ±0.5 | 2.4 ±0.4 | + | + |
| *Potentilla anserina* L. | 3868 | Ros | OP# | - | + | 127.6 ±4.5 | 134.1 ±3.9 | 23.8 ±2.0 | 27.7 ±1.2 | + | + |
| *Potentilla fulgens* Wall. ex Hook | 3868 | Ros | OP# | - | + | 149.3 ±1.3 | 138.9 ±1.9 | 23.2 ±2.0 | 23.3 ±1.7 | + | + |
| *Ranunculus brotherusii* Freyn | 3505 | Ran | OP\* | - | - | 74.9 ±4.5 | 80.3 ±6.0 | 9.0 ±0.9 | 2.7 ±0.4 | - | - |
| *Rhododendron campanulatum* D.Don | 3868 | Eri | OP# | - | - | 73.6 ±2.9 | 139.6 ±1.6 | 8.1 ±0.7 | 37.4 ±2.3 | - | - |
| *Rhododendron lepidotum* Wall.ex G.Don | 3868 | Eri | OP# | - | + | 113.9 ±3.8 | 99.0 ±2.7 | 20.2 ±2.1 | 14.0 ±1.6 | - | - |
| *Rhododendron lowndesii* Davidian | 3750 | Eri | OP\* | - | + | 90.5 ±4.7 | 82.2 ±3.3 | 6.7 ±1.1 | 4.5 ±0.5 | + | + |
| *Rhododendron lowndesii* Davidian | 3750 | Eri | OP\* | - | + | 90.5 ±4.7 | 82.2 ±3.3 | 6.7 ±1.1 | 4.5 ±0.5 | + | + |
| *Rosa sericea* Lindl. | 3868 | Ros | OP# | - | - | 137.8 ±2.5 | 140.6 ±2.0 | 28.1 ±2.6 | 36.6 ±2.7 | - | + |
| *Salix calyculata* Hook. f. ex Anders. | 3750 | Sal | OP\* | - | - | 118.9 ±2.8 | 134.0 ±2.5 | \* | \* | + | + |
| *Salix daltoniana* Anders. | 3482 | Sal | OP# | - | - | 74.6 ±4.4 | 144.3 ±1.9 | 8.8 ±0.8 | 24.8 ±1.0 | - | + |
| *Stellera chamaejasme* L. | 3803 | Thy | OP\* | - | - | 140.1 ±1.2 | 140.4 ±2.2 | 7.5 ±0.9 | 20.7 ±2.0 | + | + |
| *Taraxacum officinale* Wigg. | 3275 | Ast | OP\* | - | + | 76.0 ±3.3 | 77.6 ±3.4 | 8.0 ±0.9 | 8.4 ±1.0 | - | - |
| *Thalictrum reniforme* Wall. | 3803 | Ran | OP\* | - | - | 139.5 ±1.7 | 143.9 ±1.5 | \* | \* | - | + |
| *Thermopsis lanceolata* R.Br.ex W.T.Ait. | 3440 | Fab | OP\* | - | - | 127.7 ±3.6 | 135.3 ±2.1 | 13.3 ±1.4 | 21.9 ±1.7 | - | + |
| *Thymus linearis* Benth. | 3545 | Lam | OP\* | - | - | 105.4 ±4.2 | 115.4 ±2.0 | \* | \* | + | + |
| Unknown | 3225 | Lam | OP\* | - | - | 128.7 ±2.6 | 146.4 ±1.2 | 40.9 ±3.8 | 22.8 ±1.3 | + | + |
| *Vincetoxicum hirundinaria* Medik. | 3545 | Asc | OP\* | - | + | 61.6 ±3.7 | 79.3 ±5.3 | 5.9 ±0.9 | 23.7 ±2.6 | - | + |
| *Viola* sp. | 3065 | Vio | OP\* | - | + | 89.2 ±3.4 | 97.0 ±2.7 | 28.3 ±2.3 | 14.3 ±1.2 | - | - |

\*calculation not possible

**Table 5.** Surface features of leaves of 31 alpine species from Nepal Himalaya are characterized by droplet contact angle and retention degrees, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP\*–dry open places; OP#– wet open places), the altitude of collection (Alt) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=10).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Inf | La | Contact angle(°) | | Retention (°) | | Trichome | |
| AD | AB | AD | AB | AD | AB |
| *Abies pindrow* Royle | 4205 | Pin | OP# | - | - | 80.5 ±3.2 | 128.5 ±2.0 | \* | \* | - | - |
| *Androsace* sp.1 | 4205 | Pri | OP# | - | - | 135.9 ±2.7 | 137.9 ±2.9 | 29.5 ±2.8 | 25.8 ±1.9 | + | + |
| *Androsace* sp.2 | 4940 | Pri | OP\* | - | - | 140.3 ±1.7 | 149.1 ±1.2 | 29.9 ±2.8 | 25.2 ±1.0 | + | + |
| *Androsace* sp.3 | 5268 | Pri | OP\* | - | - | 138.7 ±3.5 | 136.8 ±3.3 | 33.2 ±2.6 | 42.4 ±3.9 | + | + |
| *Astragalus* sp. | 4205 | Fab | OP# | - | + | 125.5 ±3.6 | 148.4 ±3.0 | 31.9 ±3.2 | 26.6 ±3.5 | - | + |
| *Braya oxycarpa* Hook. f. & Thoms. | 4617 | Bra | OP\* | - | + | 142.6 ±2.3 | 149.1 ±3.6 | 29.9 ±2.1 | 25.2 ±2.3 | + | + |
| *Chesneya nubigena* (D.Don) Ali | 4365 | Fab | OP\* | - | + | 99.1 ±2.8 | 139.4 ±2.5 | \* | \* | + | + |
| *Cotoneaster microphyllus* Wall. ex Lindl. | 4205 | Ros | OP# | - | + | 67.8 ±2.9 | 122.9 ±2.9 | 13.2 ±1.7 | 29.6 ±2.1 | - | + |
| *Euphorbia stracheyi* Boiss. | 4520 | Eup | OP\* | - | - | 139.7 ±2.1 | 143.6 ±1.7 | 30.0 ±3.5 | 37.1 ±2.2 | - | - |
| *Fragaria nubicola* Lindl. ex Lacaita | 4205 | Ros | OP# | - | + | 110.2 ±3.0 | 113.6 ±1.5 | \* | \* | - | - |
| *Geum elatum* Wall.ex G.Don | 4205 | Ros | OP# | - | + | 137.8 ±3.3 | 141.1 ±2.6 | 29.2 ±3.7 | 32.2 ±3.2 | + | + |
| *Iris decora* Wall. | 4205 | Iri | OP# | - | - | 146.3 ±1.4 | 151.1 ±0.8 | 12.4 ±2.1 | 12.4 ±1.6 | - | - |
| *Juniperus communis* L. | 4205 | Cup | OP# | - | - | 105.7 ±4.6 | 120.6 ±1.6 | \* | \* | - | - |
| *Juniperus communis* L. | 4617 | Cup | OP\* | - | - | 135.7 ±1.4 | 140.1 ±2.7 | \* | \* | - | - |
| *Oxytropis lapponica* (Wahlenb.) Gay | 4260 | Fab | OP\* | - | - | 141.4 ±1.3 | 143.1 ±1.1 | 39.8 ±2.8 | 36.2 ±2.4 | + | + |
| *Plantago major* L. | 4205 | Pla | OP# | - | + | 78.4 ±4.6 | 54.5 ±6.5 | 7.3 ±0.6 | 6.8 ±0.6 | + | + |
| *Potentilla anserina* L. | 4205 | Ros | OP# | - | + | 139.1 ±2.2 | 119.3 ±3.3 | 22.3 ±0.9 | 22.5 ±0.7 | + | + |
| *Potentilla argyrophylla* Wall. ex. Lehm. | 4205 | Ros | OP# | - | + | 148.6 ±2.1 | 139.7 ±0.9 | 27.2 ±1.2 | 33.8 ±2.5 | + | + |
| *Primula deuteronana* Craib | 4617 | Pri | OP\* | - | + | 88.5 ±3.0 | 88.6 ±3.0 | 12.4 ±1.2 | 12.5 ±1.2 | + | + |
| *Primula glandulifera* Balf. f.& W.W. Sm. | 4659 | Pri | OP\* | - | + | 105.6 ±2.3 | 128.2 ±5.7 | 17.1 ±2.0 | 17.7 ±2.7 | - | - |
| *Ranunculus pulchellus* C.A. Mey. | 4205 | Ran | OP# | - | + | 63.6 ±3.4 | 69.1 ±3.1 | \* | \* | - | - |
| *Rhododendron anthopogon* D.Don | 4205 | Eri | OP# | - | + | 42.4 ±3.0 | 89.9 ±4.8 | 14.0 ±1.1 | 3.2 ±0.3 | - | - |
| *Rhododendron anthopogon* D.Don | 4659 | Eri | OP\* | - | - | 129.0 ±4.9 | 88.0 ±8.6 | 17.3 ±3.4 | 7.8 ±0.8 | - | - |
| *Rhododendron campanulatum* D.Don | 4205 | Eri | OP# | - | - | 51.3 ±3.9 | 132.8 ±4.7 | 10.3 ±0.9 | 32.2 ±4.0 | - | - |
| *Saxifraga andersonii* Engl. | 4940 | Sax | OP\* | - | - | 133.0 ±3.0 | 129.7 ±2.6 | 12.5 ±1.1 | 10.8 ±0.8 | - | - |
| *Saxifraga andersonii* Engl. | 4590 | Sax | OP\* | - | - | 138.1 ±2.7 | 113.1 ±4.4 | 13.8 ±0.9 | 11.0 ±1.7 | - | - |
| *Saxifraga hypostoma* H.Sm. | 4659 | Sax | OP\* | - | - | 141.0 ±2.8 | 141.5 ±2.0 | \* | \* | - | - |
| *Saxifraga pulvinaria* H.Sm. | 4940 | Sax | OP\* | - | - | 132.5 ±2.3 | 136.7 ±2.4 | \* | \* | + | + |
| *Saxifraga* sp. | 4205 | Sax | OP# | - | - | 80.0 ±3.4 | 73.0 ±1.1 | \* | \* | - | - |
| *Trifolium repens* L. | 4205 | Fab | OP# | - | + | 144.7 ±1.9 | 63.2 ±2.9 | 24.1 ±2.6 | 10.3 ±2.1 | + | + |
| Unknown | 5268 | Poa | OP\* | - | - | 131.3 ±2.5 | 142.4 ±2.7 | 28.1 ±2.4 | 28.6 ±3.3 | - | - |

\*calculation not possible

**APPENDIX – 2**

Investigated species from montan to alpine region of Tyrolean Central Alps of Austria

**Table 6.** Surface features of leaves of 30 montane species of the Tyrolean Central Alps of Austria are characterized by droplet contact angle, trichomes presence (+) or absence (–), infections (Inf) absence (–and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP#–wet open places), the altitude of collection (Alt), the growth habit (Habit) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Habit | Inf | La | Contact angle (°) | | Trichome | |
| AD | AB | AD | AB |
| *Aegopodium podagraria* L. | 600 | Api | OP# | Herb | - | - | 86.8 ±9.8 | 139.0 ±1.7 | - | - |
| *Alliaria petiolata* (M. Bieb.) Cavara & Grande | 600 | Bra | OP# | Herb | - | + | 64.9 ±1.8 | 85.5 ±3.7 | - | - |
| *Allium ursinum* L. | 600 | All | OP# | Grass | - | - | 96.6 ±7.6 | 143.3 ±4.2 | - | - |
| *Arnica montana* L*.* | 600 | Ast | OP# | Herb | - | - | 66.5 ±4.1 | 75.0 ±7.2 | + | + |
| *Artemisia* sp. | 600 | Ast | OP# | Herb | - | + | 111.7 ±3.7 | 152.3 ±1.4 | + | + |
| *Bellis perennis* L. | 600 | Ast | OP# | Herb | - | - | 118.8 ±5.3 | 94.8 ±6.3 | + | + |
| *Chelidonium majus* L. | 600 | Pap | OP# | Herb | - | - | 141.9 ±0.8 | 136.2 ±0.9 | - | - |
| *Cornus mas* L. | 600 | Corn | OP# | Tree | - | - | 60.0 ±9.6 | 101.9 ±9.0 | + | + |
| *Corydalis cava* (L.) Schw. & Körte | 600 | Pap | OP# | Herb | - | - | 133.5 ±4.1 | 134.5 ±2.8 | - | - |
| *Eranthis hyemalis* (L.) Salisb. | 600 | Ran | OP# | Herb | - | + | 95.2 ±4.0 | 93.7 ±2.6 | - | - |
| *Geranium sylvaticum* L. | 600 | Ger | OP# | Herb | - | + | 109.8 ±5.1 | 102.9 ±2.7 | - | - |
| *Glechoma hederacea* L. | 600 | Lam | OP# | Herb | - | - | 109.4 ±10.3 | 104.1 ±9.0 | - | - |
| *Lamium purpureum* L. | 600 | Lam | OP# | Herb | - | + | 117.5 ±5.3 | 103.6 ±4.8 | + | + |
| *Lupinus polyphyllus* Lindl. | 600 | Fab | OP# | Herb | - | + | 141.6 ±6.6 | 149.1 ±2.1 | - | - |
| *Malva sylvestris* L. | 600 | Mal | OP# | Shrub | - | + | 69.0 ±6.9 | 69.0 ±4.6 | + | + |
| *Melissa officinalis* L. | 600 | Lam | OP# | Herb | - | + | 64.6 ±4.6 | 73.7 ±4.4 | + | - |
| *Phragmites australis* (Cav.) Trin. ex Steud | 600 | Poa | OP# | Grass | - | - | 145.4 ±1.4 | 142.9 ±3.8 | - | - |
| *Picea abies* (L.) H. Karst. | 960 | Pin | OP# | Tree | - | - | \* | 94.0 ±5.7 | - | - |
| *Pinus aristata* Engelm. | 600 | Pin | OP# | Tree | - | - | \* | 127.0 ±6.5 | - | - |
| *Pinus cembra* L. | 600 | Pin | OP# | Tree | - | - | 78.7 ±1.8 | 94.0 ±5.7 | - | - |
| *Plantago lanceolata* L. | 600 | Pla | OP# | Rosette | - | - | 65.0 ±2.2 | 80.3 ±9.3 | + | + |
| *Primula elatior* (L.) Hill. | 600 | Pri | OP# | Rosette | - | - | 111.5 ±12.1 | 95.6 ±2.3 | - | + |
| *Ranunculus ficaria* L*.* | 600 | Ran | OP# | Herb | - | + | 63.6 ±3.8 | 78.8 ±3.9 | - | - |
| *Saponaria officinalis* L. | 600 | Car | OP# | Herb | - | - | 82.5 ±1.3 | 109.0 ±1.2 | - | - |
| *Scilla bifolia* L. | 600 | Lil | OP# | Herb | - | - | 120.9 ±7.4 | 80.4 ±8.7 | - | - |
| *Stellaria media* (L.) Vill. | 600 | Car | OP# | Herb | - | + | 112.5 ±4.0 | 103.3 ±5.0 | - | - |
| *Taraxacum officinale* Wigg. | 600 | Ast | OP# | Rosette | - | - | 68.2 ±5.6 | 66.9 ±5.3 | - | + |
| *Trifolium repens* L. | 600 | Fab | OP# | Herb | - | + | 140.0 ±1.8 | 68.9 ±6.9 | - | - |
| *Vaccinium myrtillus* L. | 600 | Eri | OP# | Shrub | - | - | 106.1 ±3.2 | 87.1 ±8.2 | - | - |
| *Veronica hederifolia* L. | 600 | Scr | OP# | Herb | - | - | 110.1 ±6.6 | 1 18.7 ±2.3 | + | + |

\* calculation not possible

**Table 7.** Surface features of leaves of 59 subalpine species of the Tyrolean Central Alps of Austria are characterized by droplet contact angle, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP# – wet open places), the altitude of collection (Alt), the growth habit (Habit) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Habit | Inf | La | Contact angle (°) | | Trichome | |
| AD | AB | AD | AB |
| *Achillea moschata* Wulfen | 2350 | Ast | OP# | Herb | - | - | 80.4 ±6.5 | 81.5 ±8.7 | - | - |
| *Aconitum* sp. | 1950 | Ran | OP# | Herb | - | + | 109.2 ±5.5 | 104.0 ±6.1 | - | - |
| *Alchemilla conjuncta* Agg. | 1950 | Ros | OP# | Herb | - | + | 92.8 ±5.8 | 126.0 ±2.8 | - | + |
| *Alchemilla fissa*Gün.& Schu. | 2350 | Ros | OP# | Herb | - | + | 112.8 ±7.5 | 133.1 ±0.6 | + | + |
| *Antennaria dioica* (L.) Gaertn. | 2350 | Ast | OP# | Herb | - | - | 132.7 ±3.1 | 118.5 ±4.2 | + | + |
| *Anthyllis vulneraria* L. | 2350 | Ast | OP# | Herb | - | + | 133.8 ±6.2 | 92.2 ±3.6 | + | + |
| *Artemisia genipi* Weber. | 2350 | Ast | OP# | Herb | - | - | 129.1 ±4.4 | 134.3 ±3.5 | + | + |
| *Aster alpinus* L. | 1950 | Ast | OP# | Herb | - | - | 64.6 ±4.7 | 74.8 ±7.1 | - | - |
| *Campanula alpina* Jacq. | 1950 | Cam | OP# | Herb | - | - | 76.8 ±5.8 | 52.8 ±2.9 | + | + |
| *Campanula scheuchzeri* Vill. | 2350 | Cam | OP# | Herb | - | - | 95.4 ±5.0 | 92.0 ±5.8 | - | - |
| *Deschampsia* sp. | 2450 | Poa | OP# | Grass | - | - | 127.5 ±7.5 | 77.1 ±6.0 | - | - |
| *Empetrum nigrum* L. | 2350 | Eri | OP# | Herb | - | - | 113.5 ±2.8 | 113.9 ±4.3 | - | - |
| *Epilobium* sp. | 1950 | Ona | OP# | Herb | - | + | 129.5 ±3.4 | 145.8 ±2.2 | + | + |
| *Euphrasia minima* Jacq. ex DC. | 2350 | Scr | OP# | Herb | - | + | 54.6 ±4.4 | 88.1 ±4.1 | + | + |
| *Euphrasia pulchella* A. Kern. | 2350 | Scr | OP# | Herb | - | + | 61.1 ±5.0 | 73.3 ±9.4 | - | - |
| *Festuca rubra* L. | 2680 | Poa | OP# | Grass | - | - | 125.7 ±4.3 | 106.8 ±4.9 | - | - |
| *Gentiana bavarica*L. | 2350 | Gen | OP# | Herb | - | - | 56.4 ±3.1 | 69.4 ±5.1 | - | - |
| *Gentiana insubrica* (Kunz) Holub | 2350 | Gen | OP# | Herb | - | + | 65.2 ±4.8 | 60.8 ±6.7 | - | - |
| *Geranium* sp. | 1950 | Ger | OP# | Herb | - | + | 97.7 ±5.3 | 108.6 ±4.0 | + | + |
| *Gnaphalium hoppeanum* Koch | 2450 | Ast | OP# | Herb | - | - | 133.6 ±3.3 | 139.5 ±1.8 | + | + |
| *Gnaphalium supinum* L. | 2350 | Ast | OP# | Herb | - | + | 119.2 ±2.2 | 127.7 ±2.3 | + | + |
| *Homogyne alpina* (L.) Cass. | 2680 | Ast | OP# | Herb | - | + | 62.0 ±1.5 | 88.0 ±7.2 | - | - |
| *Leontodon helveticus* Mérat | 2350 | Ast | OP# | Herb | - | - | 71.8 ±5.7 | 74.0 ±2.9 | - | - |
| *Leontopodium alpinum* Cass. | 1950 | Ast | OP# | Herb | - | - | 120.6 ±6.3 | 138.9 ±4.8 | + | + |
| *Linaria alpina* (L.) Mill. | 2350 | Scr | OP# | Herb | - | - | 125.1 ±2.1 | 143.8 ±3.4 | - | - |
| *Loiseleuria procumbens* (L.) Desv. | 2100 | Eri | OP# | Herb | - | + | 88.6 ±2.1 | 92.6 ±1.7 | - | - |
| *Lotus corniculatus* L. | 1950 | Fab | OP# | Herb | - | - | 140.4 ±1.3 | 146.3 ±0.8 | - | + |
| *Lotus corniculatus* L. | 2350 | Fab | OP# | Herb | - | - | 135.8 ±5.2 | 141.9 ±1.4 | + | + |
| *Papaver burseri* Crantz. | 1950 | Pap | OP# | Herb | - | - | 139.0 ±2.6 | 128.4 ±4.7 | + | + |
| *Parnassia palustris*L. | 2350 | Par | OP# | Herb | - | + | 45.3 ±1.2 | 65.4 ±5.7 | - | - |
| *Picea abies* (L.) H. Karst | 1950 | Pin | OP# | Tree | - | - | \* | 100.8 ±4.9 | - | - |
| *Pinus aristata* Engelm. | 1950 | Pin | OP# | Tree | - | - | \* | 147.8 ±2.7 | - | - |
| *Pinus cembra* L. | 1950 | Pin | OP# | Tree | - | - | 78.6 ±3.2 | 132.6 ±2.6 | - | - |
| *Polygonum viviparum* L. | 2350 | Pol | OP# | Herb | - | - | 75.2 ±4.5 | 140.6 ±1.9 | - | - |
| *Potentilla aurea* L. | 2680 | Ros | OP# | Herb | - | + | 54.9 ±4.8 | 80.6 ±3.7 | + | + |
| *Rhododendron ferrugineum* L. | 1950 | Eri | OP# | Shrub | - | + | 81.5 ±9.6 | 65.7 ±13.6 | - | - |
| *Salix helvetica* Vill. | 2350 | Sal | OP# | Herb | - | - | 129.0 ±5.2 | 142.2 ±5.1 | + | + |
| *Salix retusa* L. | 2350 | Sal | OP# | Herb | - | - | 76.0 ±4.7 | 96.5 ±9.2 | - | - |
| *Saxifraga aizoides* L. | 2350 | Sax | OP# | Cushion | - | - | 78.4 ±7.2 | 94.8 ±9.7 | - | - |
| *Saxifraga muscoides* All. | 2350 | Sax | OP# | Cushion | - | - | 89.4 ±6.7 | 90.9 ±4.9 | + | + |
| *Saxifraga oppositifolia* L. | 2350 | Sax | OP# | Cushion | - | - | 68.1 ±2.0 | 82.3 ±2.2 | + | + |
| *Saxifraga paniculata* Mill. | 2350 | Sax | OP# | Cushion | - | - | \* | 78.5 ±8.3 | - | - |
| *Saxifraga stellaris* L. | 2350 | Sax | OP# | Cushion | - | - | \* | 85.7 ±7.6 | - | - |
| *Sempervivum montanum* L. | 2350 | Cra | OP# | Rosette | - | - | \* | 77.2 ±6.1 | + | + |
| *Senecio fuchsii* C.C. Gmel. | 1950 | Ast | OP# | Herb | - | + | 124.4 ±2.0 | 129.6 ±2.8 | - | - |
| *Senecio incanus* L. | 2100 | Ast | OP# | Herb | - | + | 131.4 ±3.7 | 118.5 ±3.8 | + | + |
| *Senecio* sp. | 1950 | Ast | OP# | Herb | - | + | 114.7 ±3.2 | 100.1 ±1.8 | - | - |
| *Silene* sp. | 1950 | Car | OP# | Herb | - | - | 135.7 ±2.5 | 134.4 ±2.9 | - | - |
| *Silene* sp. | 2100 | Car | OP# | Herb | - | - | 118.3 ±1.6 | 96.4 ±7.0 | - | - |
| *Soldanella pusilla* L. | 2350 | Pri | OP# | Herb | - | + | 53.1 ±3.5 | 65.3 ±4.0 | - | - |
| *Sorbus aucuparia* L. | 1950 | Ros | OP# | Herb | - | + | 138.7 ±3.0 | 142.7 ±4.3 | - | - |
| *Thymus praecox* Opiz | 2350 | Lam | OP# | Herb | - | - | 59.3 ±5.0 | 65.2 ±4.8 | + | + |
| *Thymus serpyllum* L. | 1950 | Lam | OP# | Herb | - | - | 66.1 ±3.7 | 53.0 ±4.0 | + | + |
| *Trifolium badium* Schreb. | 1950 | Fab | OP# | Herb | - | - | 143.1 ±1.2 | 141.3 ±2.5 | - | - |
| *Trifolium badium* Schreb. | 2350 | Fab | OP# | Herb | - | - | 145.7 ±2.7 | 147.8 ±2.1 | - | - |
| *Trifolium pratense* L. | 1950 | Fab | OP# | Herb | - | - | 147.2 ±2.9 | 146.4 ±3.0 | + | + |
| *Vaccinium gaultherioides* Bigelow | 1950 | Eri | OP# | Woody herb | - | - | 143.1 ±1.5 | 148.0 ±0.6 | - | - |
| *Vaccinium myrtillus* L. | 1950 | Eri | OP# | Woody herb | - | - | 122.2 ±9.6 | 100.0 ±13.0 | - | - |
| *Veronica bellidioides* L. | 2680 | Scr | OP# | Herb | - | - | 64.1 ±8.2 | 87.3 ±5.0 | + | + |

\* calculation not possible

**Table 8.** Surface features of leaves of 21 alpine species of the Tyrolean Central Alps of Austria are characterized by droplet contact angle, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP# – wet open places), the altitude of collection (Alt), the growth habit (Habit) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Habit | Inf | La | Contact angle (°) | | Trichome | |
| AD | AB | AD | AB |
| *Androsace helvetica* (L.)All. | 2660 | Pri | OP# | Cushion | - | - | 111.1 ±13.0 | 112.5 ±6.0 | - | - |
| *Arabis* sp.1 | 2660 | Bra | OP# | Herb | - | - | 106.6 ±6.6 | 130.0 ±6.7 | - | - |
| *Arabis* sp.2 | 2660 | Bra | OP# | Herb | - | - | 129.5 ±4.6 | 126.6 ±3.6 | + | + |
| *Artemisia* sp. | 2660 | Ast | OP# | Herb | - | + | 143.9 ±2.2 | 140.8 ±4.1 | + | + |
| *Astragalus* sp. | 2581 | Fab | OP# | Herb | - | - | 144.8 ±4.1 | 118.8 ±12.4 | + | + |
| *Doronicum* sp. | 2660 | Ast | OP# | Herb | - | - | 128.0 ±3.6 | 124.0 ±5.9 | - | - |
| *Gentiana bavarica*L. | 2581 | Gen | OP# | Herb | - | - | 124.0 ±6.7 | 97.4 ±1.8 | - | - |
| *Geum reptans*L. | 2660 | Ros | OP# | Herb | - | - | 111.4 ±15.2 | 87.8 ±9.5 | + | + |
| *Myosotis* sp. | 2581 | Bor | OP# | Herb | - | - | 116.5 ±12.7 | 110.2 ±4.1 | + | + |
| *Oxyria digyna* Hill | 2660 | Pol | OP# | Herb | - | + | 112.4 ±4.4 | 108.4 ±0.9 | - | - |
| *Poa alpina* L. | 2973 | Poa | OP# | Grass | - | - | 120.0 ±2.0 | 115.6 ±3.0 | - | - |
| *Polygonum viviparum* L. | 2581 | Pol | OP# | Herb | - | - | 51.9 ±2.0 | 148.6 ±2.8 | - | - |
| *Primula glutinosa* Wulfen | 2660 | Pri | OP# | Herb | - | - | 102.2 ±3.9 | 104.2 ±9.3 | - | + |
| *Ranunculus alpestris*L. | 2581 | Ran | OP# | Herb | - | - | 103.8 ±2.4 | 104.0 ±5.9 | + | + |
| *Ranunculus glacialis*L. | 2660 | Ran | OP# | Herb | - | + | 118.0 ±4.7 | 110.1 ±9.5 | - | - |
| *Salix* sp. | 2660 | Sal | OP# | Herb | - | - | 116.4 ±2.3 | 112.1 ±3.9 | - | - |
| *Saxifraga biflora* All. | 2660 | Sax | OP# | Cushion | - | + | 98.0 ±1.7 | 86.2 ±10.6 | + | + |
| *Saxifraga bryoides* L. | 2973 | Sax | OP# | Cushion | - | - | 94.3 ±5.9 | 91.1 ±5.6 | - | - |
| *Saxifraga moschata* Wulf. | 2973 | Sax | OP# | Cushion | - | - | 63.3 ±2.5 | 49.4 ±2.0 | + | + |
| *Scutellaria alpina*L. | 2581 | Lam | OP# | Herb | - | + | 116.4 ±3.2 | 112.3 ±3.6 | + | + |
| *Tanacetum* sp. | 2660 | Ast | OP# | Herb | - | - | 104.5 ±1.6 | 102.9 ±3.1 | - | - |

Appendix 3

Investigated species from subalpine to alpine region of Chilean Andes.

**Table 9.** Surface features of leaves of 10 subalpine species of the Chilean Andes are characterized by droplet contact angle, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP\*– dry open places), the altitude of collection (Alt), the growth habit (Habit) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Habit | Inf | La | Contact angle (°) | | Trichome | |
| AD | AB | AD | AB |
| *Acaena sericea* Phil. | 1485 | Ros | OP\* | Cushion | - | + | 130.0 ±4.8 | 129.7 ±3.0 | + | + |
| *Araucaria araucana* (Molina) K.Koch | 1485 | Arau | OP\* | Tree | - | - | 86.5 ±3.4 | 99.0 ±3.4 | - | - |
| *Baccharis magellanica* (Lam.) Persoon | 1485 | Ast | OP\* | Cushion | - | + | 63.6 ±8.2 | 75.0 ±4.1 | - | - |
| *Chuquiraga oppositifolia* D.Don | 1430 | Ast | OP\* | Woody shrub | - | + | 149.6±5.2 | 138.2 ±2.4 | - | - |
| *Euphorbia collina* Phil. | 1485 | Eup | OP\* | Herb | - | + | 131.6 ±1.8 | 122.1 ±1.4 | - | - |
| *Nassauvia revoluta* D.Don | 1485 | Ast | OP\* | Herb | - | + | 125.1 ±2.6 | 133.2 ±1.6 | - | - |
| *Oxalis enneaphylla* Cav. | 1485 | Oxa | OP\* | Herb | - | - | 133.9 ±5.1 | 134.5 ±2.3 | - | - |
| *Phacelia secunda* J.F. Gmel. | 1485 | Hyd | OP\* | Herb | - | + | 132.4 ±2.7 | 109.9 ±8.5 | + | + |
| *Pozoa volcanica* Math.& Constance | 1485 | Api | OP\* | Cushion | - | + | 127.1 ±3.2 | 128.6 ±1.7 | - | - |
| *Viola cotyledon* Ging. | 1485 | Vio | OP\* | Rosette | - | + | 123.2 ±3.0 | 127.8 ±5.1 | - | - |

**Table 10.** Surface features of leaves of 49 alpine species of the Chilean Andes are characterized by droplet contact angle, trichomes presence (+) or absence (–), infections (Inf) absence (–) and mean leaf angles (La) flat (+) or steep (–). Leaf sides are designated as adaxial (AD) or abaxial (AB) respectively. For each species special features of the habitat (Hab) of collection (OP\*– dry open places), the altitude of collection (Alt), the growth habit (Habit) and the family (Fam) is additionally depicted. Data are mean values ± SE (N=5).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Alt (m) | Fam | Hab | Habit | Inf | La | Contact angle (°) | | Trichome | |
| AD | AB | AD | AB |
| *Acaena pinnatifida* Ruiz & Pavon | 2600 | Ros | OP\* | Herb | - | - | 122.0 ±5.3 | 138.9 ±3.5 | - | - |
| *Adesmia* sp. | 3600 | Fab | OP\* | Herb | - | + | 124.8 ±10.6 | \* | + | + |
| *Aesculus hippocastanum* L. | 2470 | Hip | OP\* | Deciduous tree | - | - | 108.0 ±1.5 | 112.5 ±2.0 | - | - |
| *Alstroemeria andina* Phil. | 3050 | Als | OP\* | Herb | - | + | 131.6 ±1.3 | 134.3 ±1.8 | - | - |
| *Alstroemeria hookeri* Sweet | 2600 | Als | OP\* | Herb | - | + | 144.0 ±5.9 | 135.8 ±5.8 | - | - |
| *Azorella monantha* Clos | 3600 | Api | OP\* | Cushion | - | + | 123.1 ±2.9 | 98.7 ±7.0 | + | + |
| *Betula pendula* Roth | 2470 | Bet | OP\* | Deciduous tree | - | - | 104.7 ±3.7 | 140.0 ±1.7 | - | - |
| *Calandrinia* sp. | 3050 | Por | OP\* | Herb | - | + | 131.6 ±2.1 | 133.4 ±1.9 | - | - |
| *Calceolaria arachnoidea* Graham | 3050 | Scr | OP\* | Rosette | - | + | 143.7 ±2.9 | 146.8 ±2.1 | + | + |
| *Calceolaria arachnoidea* Graham | 2600 | Scr | OP\* | Rosette | - | + | 144.8 ±2.0 | 146.0 ±2.8 | + | + |
| *Calceolaria biflora* Lam. | 2789 | Scr | OP\* | Herb | - | + | 80.6 ±4.9 | 65.6 ±4.7 | + | + |
| *Cerastium arvense* L. | 3088 | Car | OP\* | Herb | - | + | 120.1 ±2.4 | 124.8 ±3.1 | + | + |
| *Cerastium arvense* L. | 3440 | Car | OP\* | Herb | - | + | 98.5 ±3.0 | 89.1 ±5.6 | + | + |
| *Cerastium montioides* Gay | 3600 | Car | OP\* | Herb | - | + | 95.8 ±5.8 | 119.2 ±4.0 | + | + |
| *Chaetanthera pusilla* (D.Don)Hook. & Arn. | 2985 | Ast | OP\* | Herb | - | + | 152.6 ±1.7 | 140.4 ±3.4 | + | + |
| *Chuquiraga oppositifolia* D.Don | 2600 | Ast | OP\* | Woody shrub | - | + | 139.7 ±6.3 | 142.2±2.8 | - | - |
| *Discaria nana* (Clos) B.et H.ex Masters | 2789 | Rha | OP\* | Cushion | - | + | 79.2 ±3.0 | 98.5 ±4.2 | - | - |
| *Erigeron gilliesii* (Hook. & Arn.) Cabrera | 3088 | Ast | OP\* | Herb | - | + | 150.3 ±4.9 | 117.9 ±5.4 | + | + |
| *Erigeron gilliesii* (Hook. & Arn.) Cabrera | 3600 | Ast | OP\* | Herb | - | + | 82.1 ±6.1 | 81.9 ±7.3 | + | + |
| *Euphorbia collina* Phil. | 2600 | Eup | OP\* | Herb | - | + | 129.7 ±4.3 | 117.7 ±9.7 | - | - |
| *Haplopappus anthylioides* | 2985 | Ast | OP\* | Herb | - | - | 81.0 ±2.7 | 76.9 ±2.4 | - | - |
| *Haplopappus escrobiculatus* | 2600 | Ast | OP\* | Woody shrub | - | + | 109.0 ±11.4 | 74.9 ±12.9 | - | - |
| *Laretia acaulis* Gill. & Hook. | 2985 | Api | OP\* | Cushion | - | + | 70.8 ±4.4 | 85.6 ±5.6 | - | - |
| *Loasa* sp. | 3088 | Loa | OP\* | Herb | - | - | 116.0 ±2.2 | 138.7 ±5.4 | - | - |
| *Montiopsis sericea* (Hook & Arn.) Ford | 3050 | Por | OP\* | Herb | - | + | 144.9 ±2.7 | 146.6 ±1.1 | + | + |
| *Nassauvia pyramidalis* Meyen | 3440 | Ast | OP\* | Herb | - | + | 140.0 ±2.2 | 143.1 ±2.6 | - | - |
| *Nastanthus agglomeratus* Miers. | 3600 | Cal | OP\* | Rosette | - | - | 91.8 ±6.7 | 89.9 ±3.4 | - | - |
| *Nastanthus agglomeratus* Miers. | 3088 | Cal | OP\* | Rosette | - | - | 83.9 ±4.6 | 140.0 ±4.6 | - | - |
| *Oxalis compacta* Gillies ex Hook. & Arn. | 3050 | Oxa | OP\* | Herb | - | + | 144.2 ±2.6 | 145.0 ±2.4 | + | + |
| *Oxalis compacta* Gillies ex Hook. & Arn. | 3600 | Oxa | OP\* | Herb | - | + | 148.1 ±2.2 | 149.2 ±1.6 | + | + |
| *Oxalis squamata* Zucc. | 2410 | Oxa | OP\* | Herb | - | + | 137.2 ±3.2 | 142.7 ±1.7 | - | - |
| *Oxalis squamata* Zucc. | 2725 | Oxa | OP\* | Herb | - | + | 144.7 ±1.4 | 149.8 ±3.5 | - | - |
| *Oxalis squamata* Zucc. | 2985 | Oxa | OP\* | Herb | - | - | 143.4 ±3.3 | 145.1 ±3.1 | - | - |
| *Phacelia secunda* J.F. Gmel. | 3600 | Hyd | OP\* | Herb | - | + | 125.7 ±6.8 | 135.1 ±7.1 | + | + |
| *Phacelia secunda* J.F. Gmel. | 2410 | Hyd | OP\* | Herb | - | + | 142.8 ±1.4 | 145.0 ±2.3 | + | + |
| *Pozoa coriacea* Lag. | 3600 | Api | OP\* | Herb | - | - | 123.7 ±10.6 | 123.1 ±9.0 | - | - |
| *Pozoa coriacea* Lag. | 2789 | Api | OP\* | Herb | - | + | 122.1 ±3.9 | 126.0 ±3.9 | - | - |
| *Pozoa coriacea* Lag. | 3050 | Api | OP\* | Herb | - | + | 141.7 ±1.7 | 141.6 ±4.0 | - | - |
| *Senecio eruciformis* J. Rémy | 2600 | Ast | OP\* | Shrub | - | + | 98.4 ±4.7 | 103.3 ±3.0 | - | - |
| *Taraxacum officinale* Wigg. | 2789 | Ast | OP\* | Rosette | - | + | 62.8 ±1.4 | 81.6 ±2.7 | - | - |
| *Taraxacum officinale* Wigg. | 3600 | Ast | OP\* | Rosette | - | + | 71.4 ±3.1 | 75.8 ±4.8 | - | - |
| *Tropaeolum polyphyllum* Cav. | 2410 | Tro | OP\* | Herb | - | + | 147.2 ±3.6 | 149.4 ±3.0 | - | - |
| *Tropaeolum polyphyllum* Cav. | 2725 | Tro | OP\* | Herb | - | + | 125.1 ±6.6 | 129.9 ±3.0 | - | - |
| *Tropaeolum polyphyllum* Cav. | 3600 | Tro | OP\* | Herb | - | + | 127.8 ±4.8 | 122.6 ±2.9 | - | - |
| *Tropaeolum polyphyllum* Cav. | 3088 | Tro | OP\* | Herb | - | + | 141.7 ±3.9 | 142.3 ±4.5 | - | - |
| *Viola atropurpurea* Leyb. | 3600 | Vio | OP\* | Rosette | - | - | 96.9 ±5.6 | 102.7 ±3.7 | - | - |
| *Viola phillipii* | 3050 | Vio | OP\* | Rosette | - | - | 146.8 ±1.1 | 114.1 ±2.4 | + | + |
| *Viola phillipii* | 3600 | Vio | OP\* | Rosette | - | - | 118.0 ±3.1 | 104.4 ±7.2 | + | + |

\* calculation not possible

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Abbreviation list of families | | | | | |
| Aca - | Acanthaceae | Cra - | Crassulaceae | Ole - | Oleaceae |
| Ace - | Aceraceae | Cup - | Cupressaceae | Ona - | Onagraceae |
| All - | Alliaceae | Cyp - | Cyperaceae | Oxa - | Oxalidaceae |
| Als - | Alstroemeriaceae | Dip - | Dipterocarpaceae | Pap - | Papaveraceae |
| Api - | Apiaceae | Eph - | Ephedraceae | Par - | Parnassiaceae |
| Apo - | Apocynaceae | Eri - | Ericaceae | Phy - | Phyllanthaceae |
| Aqu - | Aquifoliaceae | Eup - | Euphorbiaceae | Pin - | Pinaceae |
| Ara - | Araceae | Fab - | Fabaceae | Pla - | Plantaginaceae |
| Aral - | Araliaceae | Fag - | Fagaceae | Poa - | Poaceae |
| Arau - | Araucariaceae | Gen - | Gentianaceae | Pol - | Polygonaceae |
| Are - | Arecaceae | Ger - | Geraniaceae | Por - | Portulacaceae |
| Asc - | Asclepiadaceae | Gro - | Grossulariaceae | Pri - | Primulaceae |
| Ast - | Asteraceae | Hyd - | Hydrophyllaceae | Ran - | Ranunculaceae |
| Ber - | Berberidaceae | Hip - | Hippocastanaceae | Rha - | Rhamnaceae |
| Bet - | Betulaceae | Iri - | Iridaceae | Ros - | Rosaceae |
| Big - | Bignoniaceae | Jug - | Juglandaceae | Rub - | Rubiaceae |
| Bor - | Boraginaceae | Lam - | Lamiaceae | Rut - | Rutaceae |
| Bra - | Brassicaceae | Lau - | Lauraceae | Sal - | Saliacaceae |
| Cal - | Calyceraceae | Lec - | Lecythidaceae | Sam - | Sambucaceae |
| Cam - | Campanulaceae | Lil - | Liliaceae | Sax - | Saxifragaceae |
| Can - | Cannabaceae | Loa - | Loasaceae | Scr - | Scrophulariaceae |
| Cap - | Caprifoliaceae | Lyt - | Lythraceae | Sol - | Solanaceae |
| Car - | Caryophyllaceae | Mal - | Malvaceae | Tax - | Taxaceae |
| Che - | Chenopodiaceae | Mel - | Meliaceae | The - | Theaceae |
| Com - | Combretaceae | Mor - | Moraceae | Thy - | Thymelaeaceae |
| Con - | Convolvulaceae | Myr - | Myrtaceae | Tro - | Tropaeolaceae |
| Cor - | Coriariaceae | Myri - | Myricaceae | Urt - | Urticaceae |
| Corn - | Cornaceae | Myrs - | Myrsinaceae | Ver - | Verbenaceae |
|  |  |  |  | Vio - | Violaceae |