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| **Table S1.** Frequency of petal anthocyanin loss (PAL) and whole-plant anthocyanin loss (WAL) individuals in natural populations of species with polymorphism caused by loss of anthocyanins in petal and spontaneous white mutants, respectively. In addition, presence of non-anthocyanin flavonoids (flavones, flavonols) in flower and vegetative tissues is indicated when biochemical data is available.  |
|  | **White-petal phenotype frequency (%)** | **Non-anthocyanin** **flavonoids** | **Reference** |
|  |  | **Flower**  | **Vegetative** |  |
| **Species with PAL phenotypesa**  |  |  |  |  |
|  *Bletia patula* (Orchidaceae) | ~ 60 | ? | ? | [1] |
|  *Cirsium palustre* (Asteraceae) | 0 - 64 | ? | ? | [2] |
|  *Corydalis cava* (Fumarioideae) | 5 - 40 | ? | ? | [3] |
|  *Cosmos bipinnatus* (Asteraceae) | 10 - 15 | ? | ? | [4] |
|  *Gymnadenia rhellicani* (Orchidaceae) | 10 | + | ? | [5] |
|  *Ipomoea purpurea* (Solanaceae) | 0 - 43 | ? | ? | [6] |
|  *Linanthus parryae* (Polemoniaceae) | 0 – 100 (mean 78) | ? | ? | [7, 8] |
|  *Orchis italica* (Orchidaceae) | 12 | ? | ? | E.N. 2016 (unpublished data) |
|  *Parrya nudicaulis* (Brassicaceae) | 0 - 24 | + | + | [9]; E.N. and J.B.W. 2016 (unpublished data) |
|  *Phlox pilosa* (Polemoniaceae) | 0 - 100 | ? | ? | [10] |
|  *Protea aurea* (Proteaceae) | 70 - 95 | ? | ? | [11, 12] |
|  *Silene gallica* (Caryophyllaceae) | 0 - 100 | ? | ? | E.N. 2018 (unpublished data) |
|  *Silybum marianum* (Asteraceae) | 12 - 24 | ? | ? | [13]; E.N. 2018 (unpublished data) |
| **Species with WAL phenotypesb** |  |  |  |  |
|  *Borago officinalis* (Boraginaceae) | < 0.01 | + | + | E.N. and J.C.V. 2016 (unpublished data) |
|  *Delphinium nelsonii* (Ranunculaceae) | < 0.1 | ? | ? | [14] |
|  *Digitalis* *purpurea* (Plantaginaceae) | < 0.001 | ? | ? | [15, 16] |
|  *Echium plantagineum* (Boraginaceae) | < 0.1 | ? | ? | [17]; E.N. 2016 (unpublished data) |
|  *Ipomoea purpurea* (Solanaceae) | < 0.005 | ? | ? | [18, 19] |
|  *Iochroma calycinum* (Solanaceae) | “extremely rare” | + | - | [20] |
|  *Lupinus pilosus* (Leguminosae) | < 1 | ? | ? | [21] |
|  *Medicago sativa* (Leguminosae) | “rare” | ? | ? | [22] |
|  *Mimulus guttatus* (Phrymaceae) | 0.08 (greenhouse) | ? | ? | [23] |
|  *Mimulis lewisii* (Phrymaceae) | “rare” | ? | ? | [24] |
|  *Orchis mascula* (Orchidaceae) | < 1.4 | ? | ? | [25] |
|  *Phlox drummondii* (Polemoniaceae) | 1 | ? | ? | [26] |
|  *Silene dioca* (Caryophyllaceae) | “rare” | ? | ? | [27, 28] |
| a,all polymorphic species showed PAL individuals with anthocyanins in vegetative tissues, except in *Cosmos bipinnatus, Gymnadenia rhellicani* and *Silybum marianum* with no available information. b, all species with spontaneous mutants had WAL individuals with lack of anthocyanins in vegetative tissues, except in *Iochroma calycinum* in which wild type plants also showed lack of anthocyanins in vegetative tissues, and in *Ipomoea purpurea* in which variegated pigmentation was found in flowers, stems and leaves. |

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