Supplementary data

Identification and characterization of unique photosynthetic phenotypes in *Portulaca* (Portulacaceae): $C_3$-$C_4$ intermediates and NAD-ME $C_4$ species with Pilosoid type Kranz anatomy.

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**Fig. S1.** Electron microscopy of *in situ* immunolocalization of glycine decarboxylase (GDC) in M (A, C, E, G, I) and BS (B, D, F, H, J) cells of *Portulaca* species having different types of photosynthesis, and the $C_3$ outgroup *Sesuvium portulacastrum*. Gold particles in M and BS cells in $C_3$ *S. portulacastrum* (A, B), $C_3$–$C_4$ *P. hirsutissima* (C, D), $C_3$–$C_4$ *P. mucronata* (E, F), $C_3$–$C_4$ *P. cryptopetala* variety from Uruguay (G, H) and $C_4$ *P. oleracea* (I, J). Scale bars = 0.2 $\mu$m for C, D; 0.5 $\mu$m for A, B, E-H. c, chloroplast; m, mitochondria. Also, see Voznesenskaya *et al.*, (2010) which showed selective localization of GDC in mitochondria in BS cells of *P. cryptopetala* variety from Argentina, whereas the $C_3$ outgroup species *S. portulacastrum* had equivalent labeling in M and BS mitochondria.
Mesophyll

S. portulacastrum, C₃

P. oleracea

P. cryptopetala, C₄

P. hirsutissima, C₃-C₄

P. mucronata, C₃-C₄

P. cryptopterata, C₃-C₄

P. oleracea, C₄

BS

A

B

C

D

E

F

G

H

I

J