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CORRECTIONS

Vol. 96, 245–250, 1991

P. Christopher LaRosa, David Rhodes, Judith C. Rhodes, Ray A. Bressan, and Laszlo N. Csonka. Elevated Accumulation of Proline in NaCl-Adapted Tobacco Cells Is Not Due to Altered Δ^1-Pyrroline-5-Carboxylate Reductase.

Two errors occur in this paper, one in the abstract, one in the legend to Figure 3. The last sentence of the abstract should read, "These data suggest that the NaCl-dependent regulation of proline synthesis in tobacco cells does not involve induction of pyrroline-5-carboxylate reductase isozymes or changes in its kinetic properties." In the legend to Figure 3 on page 248, the description of panel C, which begins on the ninth line, should read, "C, Lineweaver-Burk plot of P5C reductase activity of highly enriched P5C (Tables I, II) from S-0 and S-25 cells. Shown in the relationship between 1/V and 1/[P5C](mM)$^{-1}$."

Vol. 96, 518–528, 1991

Maurice S. B. Ku, Jingrui Wu, Ziyu Dai, Rick A. Scott, Chun Chu, and Gerald E. Edwards. Photosynthetic and Photorespiratory Characteristics of *Flaveria* Species.

Due to a computer error at the printer, portions of lines 10 and 11 of the abstract were dropped out after the authors had approved proof. The complete abstract is reproduced below.

ABSTRACT

The genus *Flaveria* shows evidence of evolution in the mechanism of photosynthesis as its 21 species include C_3, C_3-C_4, C_4-like, and C_4 plants. In this study, several physiological and biochemical parameters of photosynthesis and photorespiration were measured in 18 *Flaveria* species representing all the photosynthetic types. The 10 species classified as C_3-C_4 intermediates showed an inverse continuum in level of photorespiration and development of the C_4 syndrome. This ranges from *F. sonorensis* with relatively high apparent photorespiration and lacking C_4 photosynthesis to *F. ramosissima* with low apparent photorespiration and having partial C_4 photosynthesis. Among the intermediates, the photosynthetic CO_2 compensation points at 30°C and 1150 micromoles quanta per square meter per second varied from 9 to 29 microbars. The values for the three C_4-like species varied from 3 to 6 microbars, similar to those measured for the C_4 species. The activities of the photorespiratory enzymes glycolate oxidase, hydroxypyruvate reductase, and serine hydroxymethyltransferase decreased progressively from C_3 to C_3-C_4 to C_4-like and C_4 species. On the other hand, most intermediates had higher levels of phospho*enol*pyruvate carboxylase and NADP-malic enzyme than C_3 species, but generally lower activities compared to C_4-like and C_4 species. The levels of these C_4 enzymes are correlated with the degree of C_4 photosynthesis, based on the initial products of photosynthesis. Another indication of development of the C_4 syndrome in C_3-C_4 *Flaveria* species was their intermediate chlorophyll *a*/*b* ratios. The chlorophyll *a*/*b* ratios of the various *Flaveria* species are highly correlated with the degree of C_4 photosynthesis suggesting that the photochemical machinery is progressively altered during evolution in order to meet the specific energy requirements for operating the C_4 pathway. In the progression from C_3 to C_4 species in *Flaveria*, the CO_2 compensation point decreased more rapidly than did the decrease in O_2 inhibition of photosynthesis or the increase in the degree of C_4 photosynthesis. These results suggest that the reduction in photorespiration during evolution occurred initially by refixation of photorespired CO_2 and prior to substantive reduction in O_2 inhibition and development of the C_4 syndrome. However, further reduction in O_2 inhibition in some intermediates and C_4-like species is considered primarily due to the development of the C_4 syndrome. Thus, the evolution of C_3-C_4 intermediate photosynthesis likely occurred in response to environmental conditions which limit the intercellular CO_2 concentration first via refixation of photorespired CO_2, followed by development of the C_4 syndrome.