

RETRACTION

Retention of the 4-pro-R hydrogen atom of mevalonate at C-2,2' of bacterioruberin in *Halobacterium halobium*

I. E. SWIFT and B. V. MILBORROW

Volume 187 (1980), pp. 261–264

Stereochemistry of allene biosynthesis and the formation of the acetylenic carotenoid diadinoxanthin and peridinin (C37) from neoxanthin

I. E. SWIFT and B. V. MILBORROW

Volume 199 (1981), pp. 67–74

The recent discoveries of Rohmer et al. [1] have established that mevalonate is a precursor of terpenoids such as sterols and rubber, biosynthesized in the cytosol of plants, while pyruvate and glyceraldehyde phosphate are the precursors of terpenoids synthesized within chloroplasts. Both pathways produce isopentenyl diphosphate (IPP) as the building block of terpenoids, and some of it can enter chloroplasts and become incorporated into isoprenoids. Mevalonate is incorporated into isoprenoids in very low yields by intact isolated chloroplasts [2], but pyruvate and IPP are incorporated at a considerably higher rate.

These observations led us to re-examine some of the results reported earlier on the incorporation of stereospecifically tritiated mevalonates into a range of carotenoids. When the experiments were repeated, we failed to obtain incorporation of mevalonate into the compounds sought, and therefore we deduce that the original claims are not supported. We therefore withdraw our earlier conclusions about the biosynthesis of lutein, peridinin, diadinoxanthin, neoxanthin and bacterioruberin [3–7].

REFERENCES

- 1 Rohmer, M. (1999) The discovery of a mevalonate independent pathway for isoprenoid biosynthesis in bacteria, algae and higher plants. *Nat. Prod. Rep.* **16**, 565–574
- 2 Milborrow, B. V. and Lee, H.-S. (1998) Endogenous biosynthetic precursors (+)-abscisic acid. VI. Carotenoids and ABA are formed by the "non-melvanate" triose-pyruvate pathway in chloroplasts. *Aust. J. Plant Physiol.* **25**, 507–512
- 3 Swift, I. E. and Milborrow, B. V. (1981) Stereochemistry of allene biosynthesis and the formation of the acetylenic carotenoid diadinoxanthin and peridinin (C37) from neoxanthin. *Biochem. J.* **199**, 67–74
- 4 Swift, I. E. and Milborrow, B. V. (1981) Stereochemistry of α , β and γ ring formation in bacterial C₅₀ carotenoids. *J. Biol. Chem.* **256**, 11607–11611
- 5 Milborrow, B. V., Swift, I. E. and Netting, A. G. (1982) Stereochemistry of hydroxylation of the carotenoid lutein in *Calendula officinalis*. *Phytochemistry* **21**, 2853–2857
- 6 Swift, I. E., Milborrow, B. V. and Jeffrey, S. W. (1982) Formation of neoxanthin, diadinoxanthin and peridinin from [¹⁴C]zeaxanthin by a cell-free system from *Amphidinium carterae*. *Phytochemistry* **21**, 2859–2864
- 7 Swift, I. E. and Milborrow, B. V. (1980) Retention of the 4-pro-R hydrogen atom of mevalonate at C-2,2' of bacterioruberin in *Halobacterium halobium*. *Biochem. J.* **187**, 261–264