Supporting Information

Apocarotenoids in the sexual interaction of *Phycomyces*

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A simple estimate of the apocarotenoid content

A simple estimate, C, of the increased apocarotenoid content was calculated as C = B-kA, where B is the absorbance at 328 nm in mated cultures, A is their maximum absorption near 260 nm, and k is the quotient between the respective values, B’ and A’, in single cultures (Figure S1). The k values were 0.048 ± 0.005 for cultures on minimal agar and 0.071 ± 0.007 for cultures on enriched agar (mean and
standard deviation of the distribution in 8 independent experiments with the wild-type cultures in each case). This difference reflected the differences in the composition of agar media.

The C value was $0.37 \pm 0.03$ in 12 mated cultures of the wild types and $0.011 \pm 0.003$ in 19 mated cultures of the carB mutant strains (means and standard error). These values were independent of the media (minimal or enriched agar) and the strains (NRRL1555, NRRL1554, and A56).

**Figure S1.** Absorption spectra of culture media of wild-type strains A56 and NRRL1555 grown together for five days on minimal agar (mated culture, thick line), and NRRL1555 was grown alone in the same way (single culture, thin line). A and A’ are the maximum absorbances (at about 260 nm); B and B’ are the absorbances at 328 nm.
Figure S2. Chromatograms of neutral and acid extracts of single and mated cultures of the wild types NRRL1554, NRRL1555 and A56 and the carB mutants C5 and S342, unable to produce β-carotene. The ordinates represent the absorbance at 328 nm in milliunits. Note the changes of scale. The sex, (+) or (−), is indicated for each strain.
Figure S3. Chromatograms of neutral and acid extracts of single and mated cultures of the wild-types NRRL1554, NRRL1555 and A56 and the carB mutants C5 and S342, unable to produce β-carotene. The ordinates represent the absorbance at 280 nm in milliunits. Note the changes of scale. The sex, (+) or (−), is indicated for each strain.
Figure S4. Absorption spectra of the apocarotenoids as eluted from the HPLC column.
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Spectrum $^1$H NMR of 4a + 5a
Spectrum $^{13}\text{C}$ NMR of 4a + 5a
Spectrum $^1$H NMR of 4 + 5
Spectrum $^{13}$C NMR of $4 + 5$
Spectrum $^1$H NMR of 6
Spectrum $^{13}$C NMR of 6
Spectrum COSY of 6
Spectrum HSQC of 6
Spectrum HMBC of 6
Spectrum $^1$H NMR of 7

(solvent: acetone)
Spectrum $^{13}$C NMR of 7
Spectrum $^1$H NMR of 7

(solvent: chloroform)
Spectrum $^1$H NMR of $7 + 8$ (solvent: acetone)
Spectrum $^{13}$C NMR of 7 + 8

(solvent: acetone)
Spectrum $^1$H NMR of 7 + 8

(solvent: chloroform)
Spectrum $^1$H NMR of 2
Spectrum $^1$H NMR of 2 + 12
Spectrum $^1$H NMR of 3
Spectrum $^1$H NMR of 11a (9E)
Spectrum $^1$H NMR of 9a and 10 (9Z)
Spectrum $^{13}$C NMR of 9a and 10 (9Z)