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Correction

Correction to "Strategies for Transferring Photobiocatalysis to Continuous Flow Exemplified by the Photodecarboxylation of Fatty Acids"

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The published article contained an error regarding the applied light intensities in the batch reactions. In the majority of instances, the reported photon flux density of 42 μmol·L^{-1}·s^{-1} must be updated to 36 μmol·L^{-1}·s^{-1}. The corrected Figures 1 and 2, Table 1, the updated text from the main paper as well as a summary of the corrected sections of the Supporting Information are provided below. It is important to note that these modified reaction conditions do not impact any of the conclusions drawn in the original article.

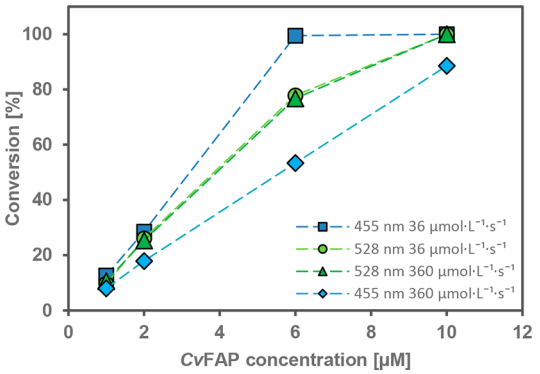

Figure 1. Dependence of conversion on photon flux density and *Cv*FAP concentration at 528 and 455 nm. Reaction conditions: palmitic acid (13 mM), *Cv*FAP (1−10 μM), Tris·HCl buffer (100 mM, pH 8.5), 30% v/v DMSO, 1 mL volume. The reactions were run at 25 °C, 500 rpm, 24 h. Displayed concentrations are mean values calculated from duplicate experiments.

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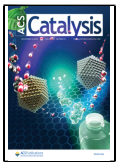
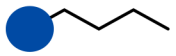
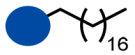
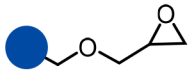
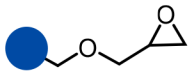
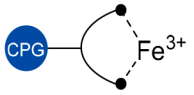
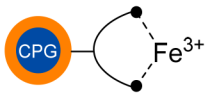
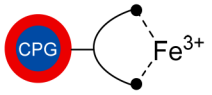
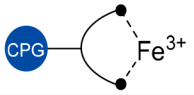


Table 1. Enzyme Loading and Achieved Conversion of Immobilized *Cv*FAP (Purified or from Cell Lysate) on Various Carriers

Entry	Carrier	Surface functionality	Binding mode	Enzyme loading (% w/w)	Conversion (%)[e]
1[a]	Dowex 66		electrostatic interaction	n.d.	n.d.
2[a]	Sepabeads EC-BU		hydrophobic interaction	1.3 ± 0.6	n.d.
3[a]	Sepabeads EC-OD		hydrophobic interaction	5.5 ± 0.4	n.d.
4[b]	Polyacrylamide		covalent	n.d.	n.d.
5[a]	Eupergit C		covalent	n.d.	n.d.
6[a]	Eupergit C250 L		covalent	2.3 ± 0.8	3.6 ± 0.3
7[c]	EziG Opal		IMA	7.7 ± 0.8	4.2 ± 1.0
8[c]	EziG Amber		IMA	5.8 ± 1.8	3.7[f]
9[c]	EziG Coral		IMA	8.3 ± 1.8	n.d.
10[d]	EziG Opal		IMA	11.6 ± 0.6	17.3 ± 2

[a]Immobilization conditions: carrier (10 mg), purified *Cv*FAP (2 mg·mL^{-1}), Tris·HCl (100 mM, pH 8.5), total volume 0.5 mL, 600 rpm, 4 °C, 15 h, apart from Dowex 66, which was shaken for 30 min. [b]Bead activation: beads (10 mg), EDC·HCl (250 mM, 600 μL) in H_2O and *N*-hydroxysuccinimide (250 mM, 600 μL) in H_2O, shaken at 25 °C, 900 rpm, 30 min. Immobilization: activated beads (≈10 mg), *Cv*FAP (4 mg·mL^{-1}, 500 μL) in H_2O, shaken at 25 °C, 900 rpm, 2 h. [c]Immobilization conditions: EziG (10 mg), lyophilized cell lysate (10 mg·mL^{-1}, 036 U) in HEPES (100 mM, pH 8), total volume 0.5 mL, 4 °C, 900 rpm, 3 h. [d]Immobilization conditions: EziG (10 mg), purified CvFAP (4 mg·mL^{-1}) in Tris·HCl (100 mM, pH 8.5), total volume 0.5 mL, 4 °C, 900 rpm, 3 h. [e]Refers to the conversion observed in the photodecarboxylation of palmitic acid with immobilized *Cv*FAP. [f]Single value. n.d.: not detected. CPG: controlled porosity glass. IMA: immobilized metal affinity. The colored rings refer to surface coating (orange, semihydrophilic copolymer; red, polyvinyl benzyl chloride).

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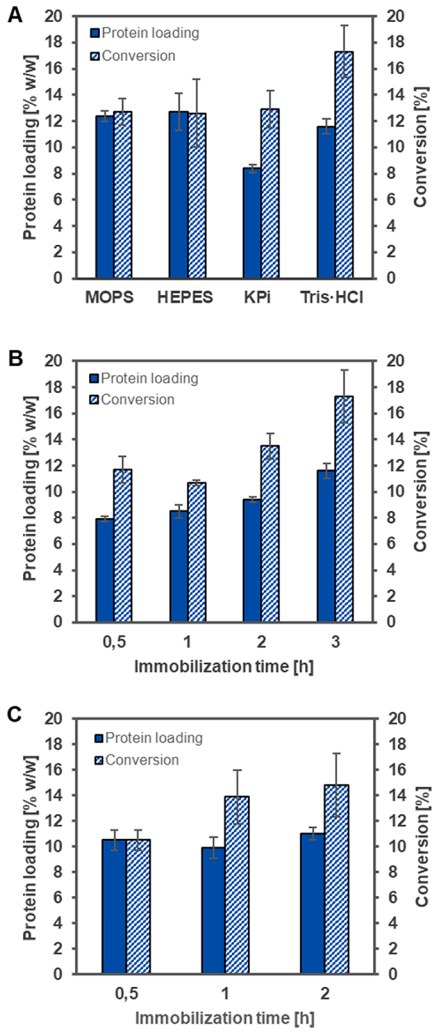

Figure 2. Immobilization of purified *Cv*FAP onto EziG Opal in batch. (A) Buffers tested: MOPS (100 mM, pH 8), HEPES (100 mM, pH 8), KPi (100 mM, pH 8), Tris·HCl (100 mM, pH 8.5). (B) Evaluation of immobilization time in Tris·HCl buffer at 4 °C. (C) Evaluation of immobilization time in Tris·HCl buffer at 25 °C. Immobilization conditions: EziG (10 mg), purified *Cv*FAP (4 mg/mL) in corresponding buffer, total volume 0.5 mL, 4 or 25 °C, 900 rpm, 3 h unless indicated otherwise. Activity assay: immobilized enzyme (10 mg), palmitic acid (13 mM), Tris·HCl buffer (100 mM, pH 8.5, 700 μL total volume), DMSO (30% v/v), total volume 1 mL, 455 nm irradiation (36 μmol·L^{-1}·s^{-1}), 25 °C, 1 h, 500 rpm. Displayed errors correspond to standard deviations of triplicate determinations.

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The activity of the purified enzyme was assayed by means of decarboxylation of palmitic acid under blue light illumination (455 nm) at two light intensities (photon flux density of 36 μmol·L^{-1}·s^{-1} and 360 μmol·L^{-1}·s^{-1}) and varying enzyme concentration (Figure 1).

It turned out that 0.046 mol % catalyst (6 μM *Cv*FAP) was sufficient to reach >99% transformation of 13 mM palmitic acid to pentadecane at 455 nm and 36 μmol·L^{-1}·s^{-1} photon flux density within 24 h and that >99% conversion was also attainable at 528 nm, albeit at a higher enzyme loading (10 μM).

Consequently, the 455 nm wavelength and 36 μmol·L^{-1}·s^{-1} photon flux density were chosen as optimal illumination parameters for the decarboxylation of palmitic acid (for the conversion over time, see Figure S4).

■ ASSOCIATED CONTENT

Supporting Information

The Supporting Information is available free of charge at https://pubs.acs.org/doi/10.1021/acscatal.3c04856.

Experimental methods, supplementary figures and tables, chromatographic data and calibration curves, and gene sequence. Corrections in the Supporting Information: In the procedures in sections 1.5, 1.8, and 1.9, the published photon flux density of 42 μmol·L^{-1}·s^{-1} was corrected to 36 μmol·L^{-1}·s^{-1}. The reported photon flux density of 424 μmol·L^{-1}·s^{-1} in section 1.11 was corrected to 360 μmol·L^{-1}·s^{-1}. Similarly in the captions of Figures S1, S2, S4, S7 and S8, as well as Tables S2, S4 and S5, the reported photon flux density of 42 μmol·L^{-1}·s^{-1} was corrected to 36 μmol·L^{-1}·s^{-1}. The reported range of applied photon flux density of 160.8−424.7 μmol·L^{-1}·s^{-1} in the caption of Figure S3 was corrected to 70−360 μmol·L^{-1}·s^{-1}. The reported photon flux density of 424 μmol·L^{-1}·s^{-1} in the caption of Figure S6 was corrected to 360 μmol·L^{-1}·s^{-1} (PDF)

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