

Supplementary Information

Miniaturization of a Colorimetric Cellulase Activity Assay on Microfluidic Sensor Platform

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Supplementary Figures

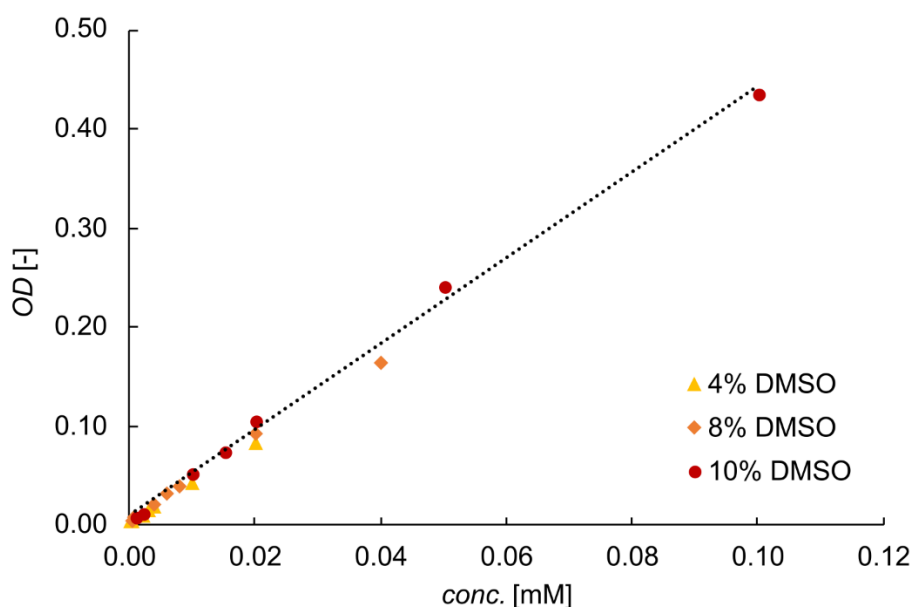


Figure S1. Resorufin calibration curve in acetate buffer for determination of the molar absorbance. To determine any influences of DMSO, different concentrations were applied. Red (cycles): 10 vol%, orange (diamonds): 8 vol%, yellow (triangles): 4 vol%. Reaction conditions: in acetate buffer, 50 μ L total volume, RT. Slope of linear fit = 4.33 mM^{-1} ($R^2 = 0.997$).

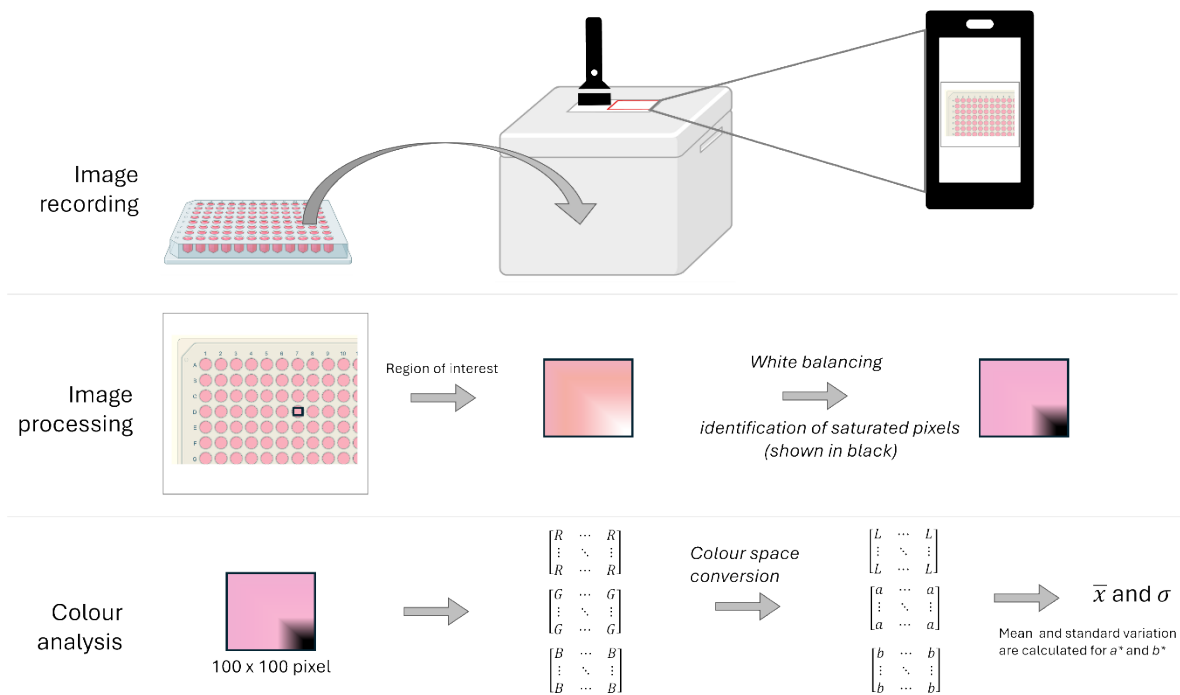


Figure S2. Schematic representation of the CIELAB image analysis. Images are recorded in a white box to ensure constant lightning conditions (first row), then the images are processed or white balancing and identification of staturated pixels, shown in black (second row), and finally the average a^* and b^* values for each region of interest is determined (third row). For details, please see the experimental section of the main manuscript.

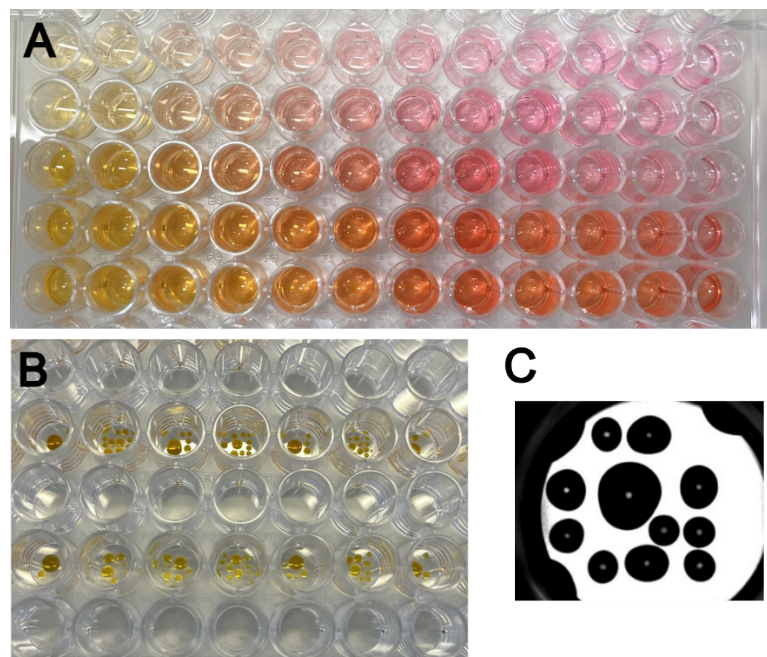


Figure S3. Cellulase activity assay performed in microwell plate. A) Image of wells after reaction using soluble ReC. Corresponding data is presented in Figure 2A in the main

manuscript. Rows: increasing cellulase concentration from left to right. Columns: Increasing ReC concentration from top to bottom. B) Image of wells direct after spotting ReC (top row: 5 mM, bottom row: 2 mM; 5×5 microarray). C): Image taken via in-line camera after spotting 2.5 μ L of 2 mM ReC in a 5×5 microarray.

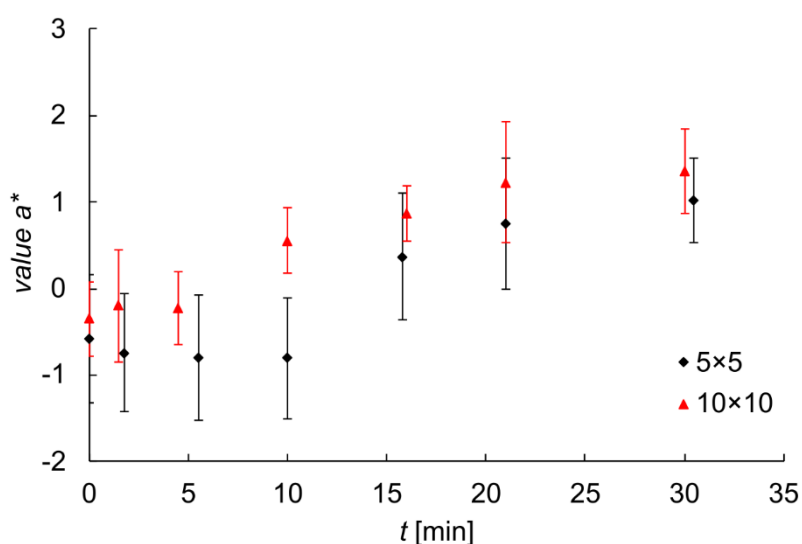


Figure S4. Evolution of value a^* during reaction of spotted ReC applying 5 mg/mL cellulase after spotting of 0.6 μ L (2 mM) in a 5×5 and 10×10 microarray. In acetate buffer containing 5 vol% DMSO and 0.1 vol% Triton X-100.

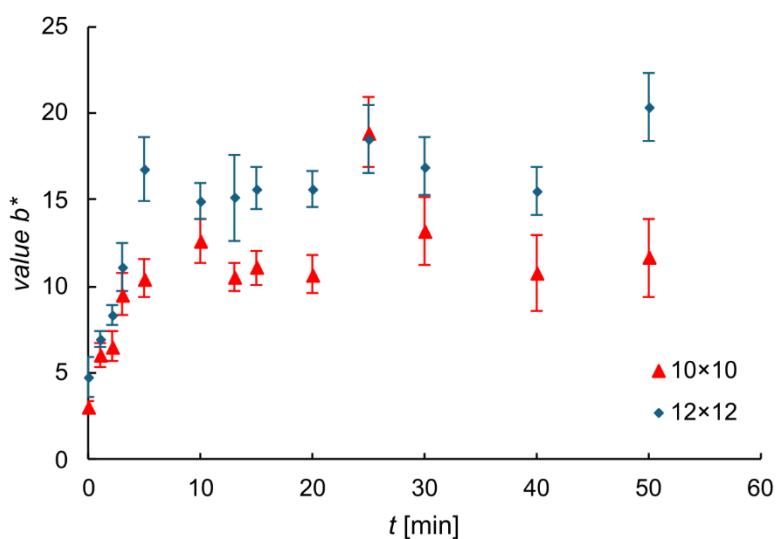


Figure S5. Comparison of solubilization of ReC after spotting a 10×10 and 12×12 microarray based on evaluation of value b^* . Spotting conditions: 2 mM ReC in DMSO, 0.6 μ L in total. Sample contained 5 mg/mL in acetate buffer, 7.5 vol% DMSO and 0.1 vol% Triton X-100.