

Supporting Information

Characterization of an alkali- and halide-resistant laccase expressed in *E. coli*: CotA from *Bacillus clausii*

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Figure S1. Sequence alignment of cotA from *B. clausii* vs. close orthologs. Sequence alignment was performed using the guidance server (MAFFT algorithm). Alignment has been visualized in clustalX.

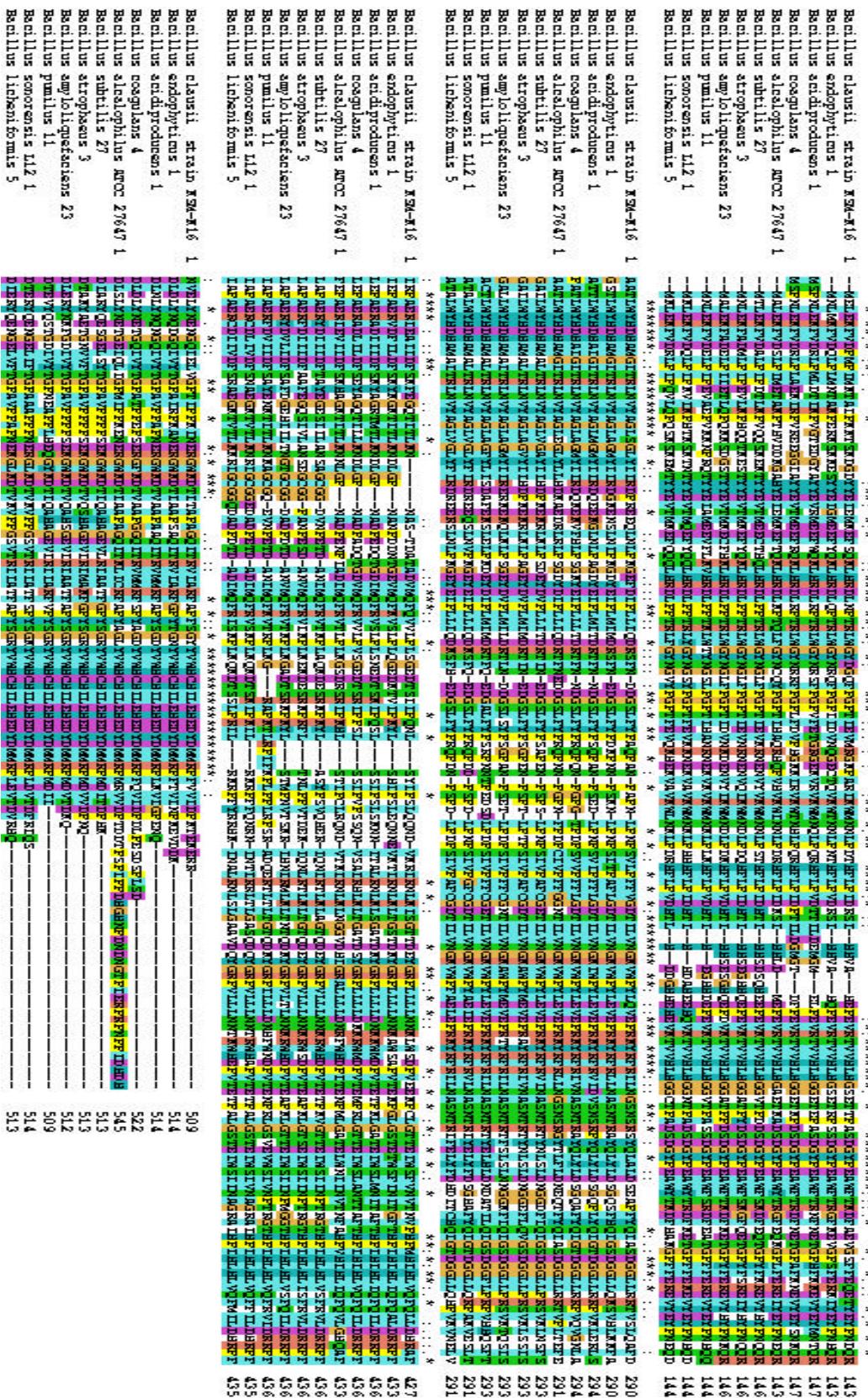


Figure S2. SDS PAGE gel of purified *B. clausii* cotA. Lane 1 is the purified and upconcentrated protein. Lane 2 is a 20-times dilution of Lane 1. Lane 3 is a Precision Plus Pre-stained protein standard (BioRAD), and the dotted line represents lanes that has been edited out.

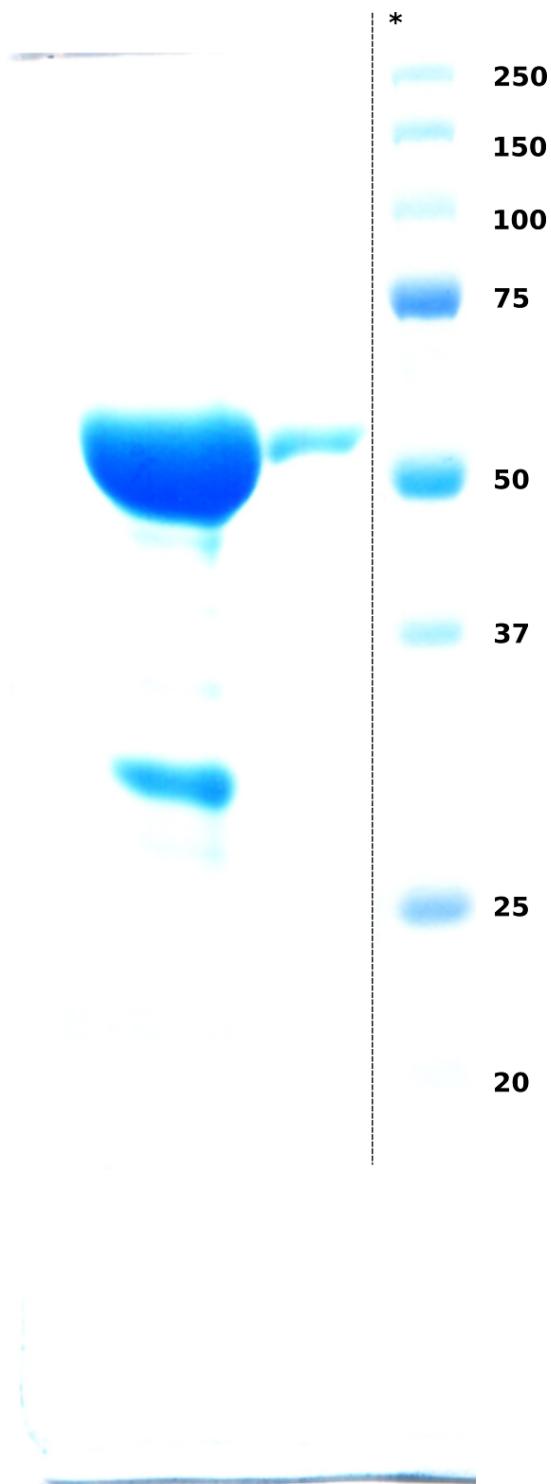
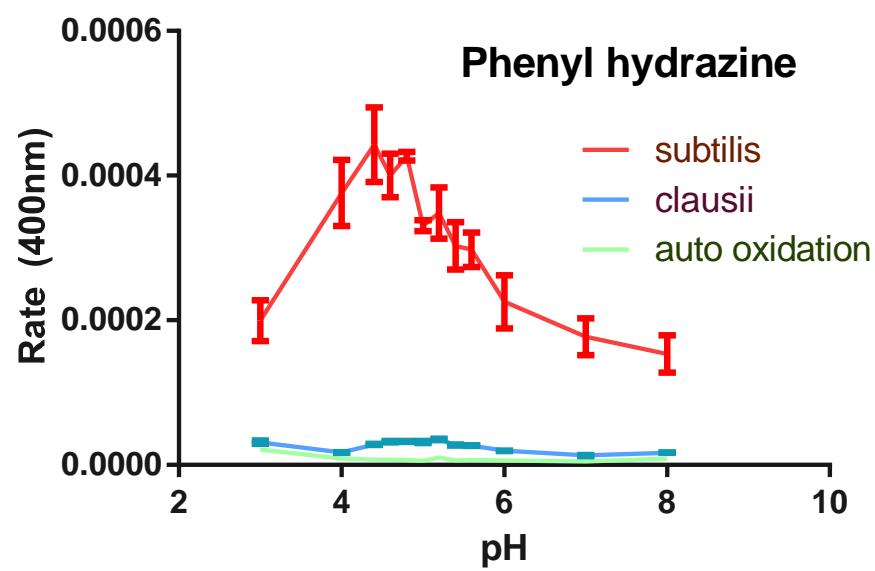
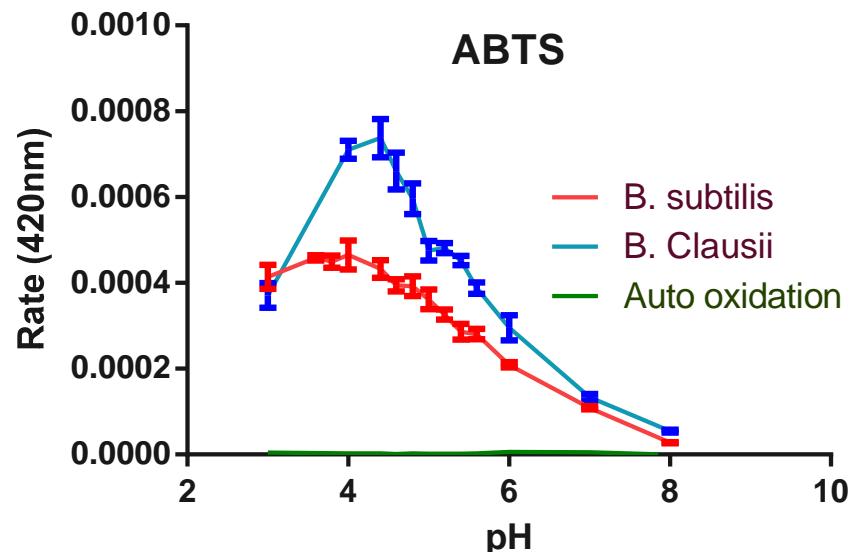
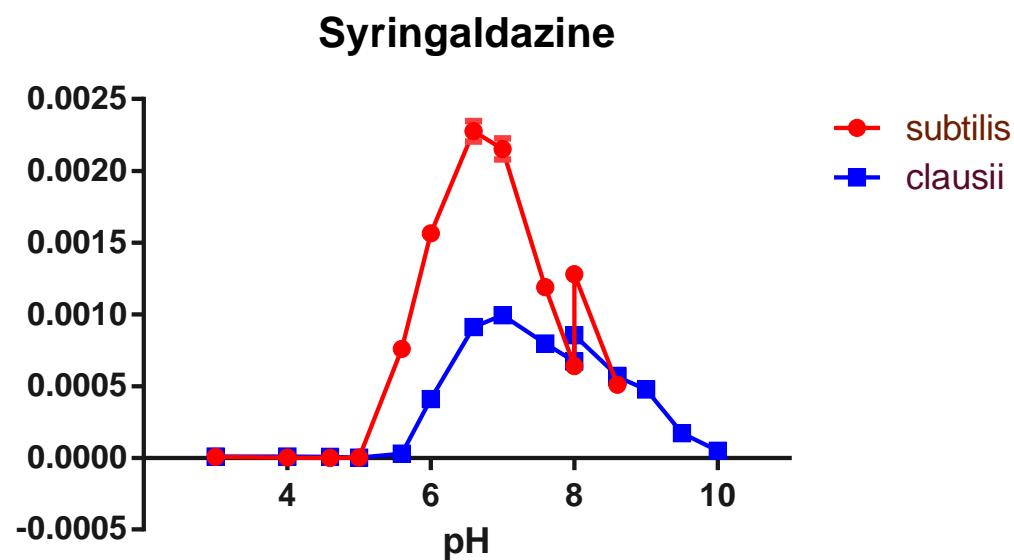
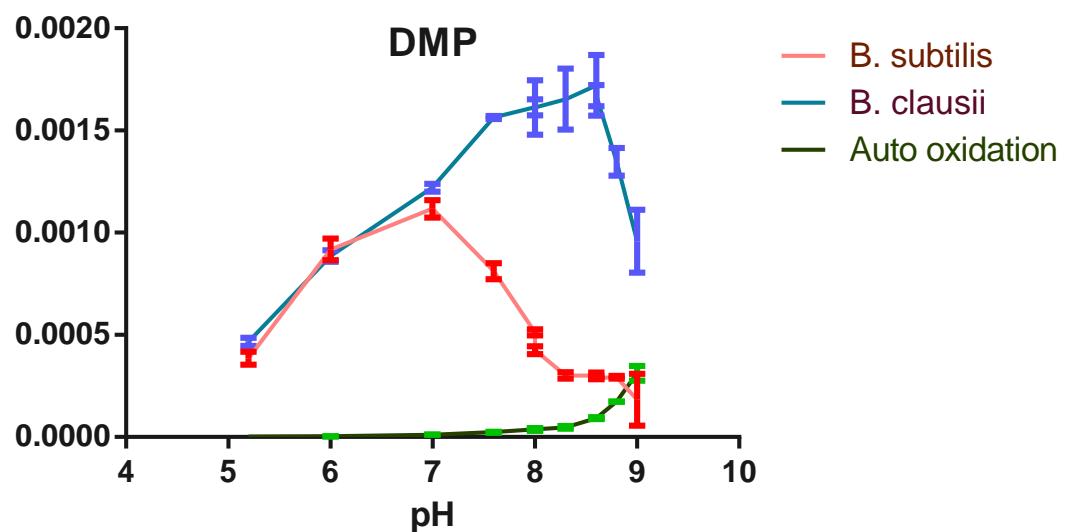
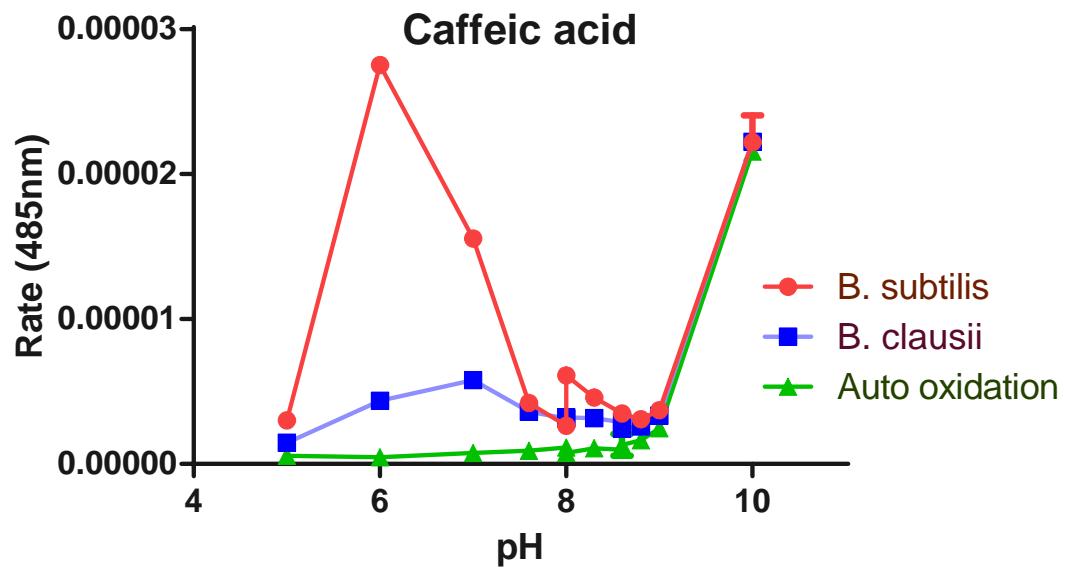
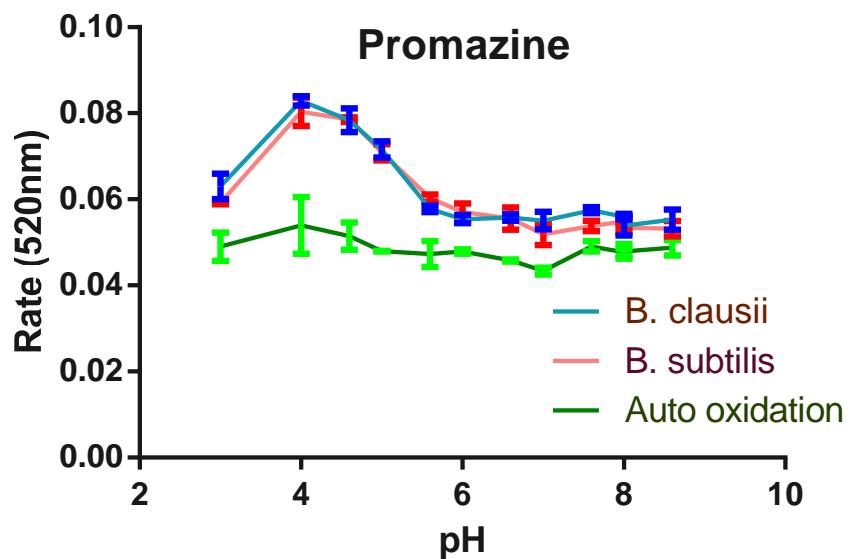


Figure S3. Activities vs. pH of *B. subtilis* (red), *B. clausii* (blue) cotAs on eight substrates, including auto-oxidation profiles (green). Data is presented without subtraction of auto-oxidation, and without correction for buffer differences.







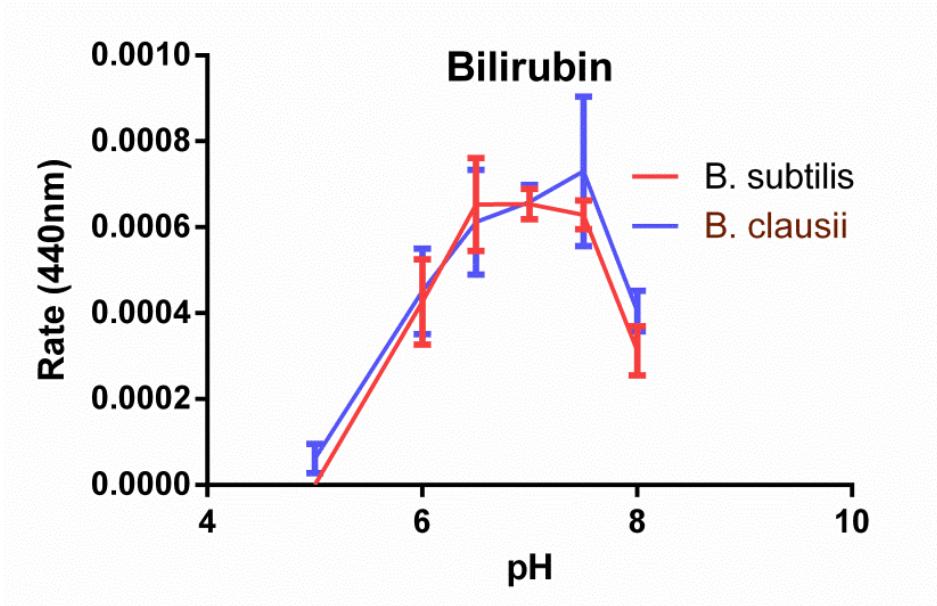
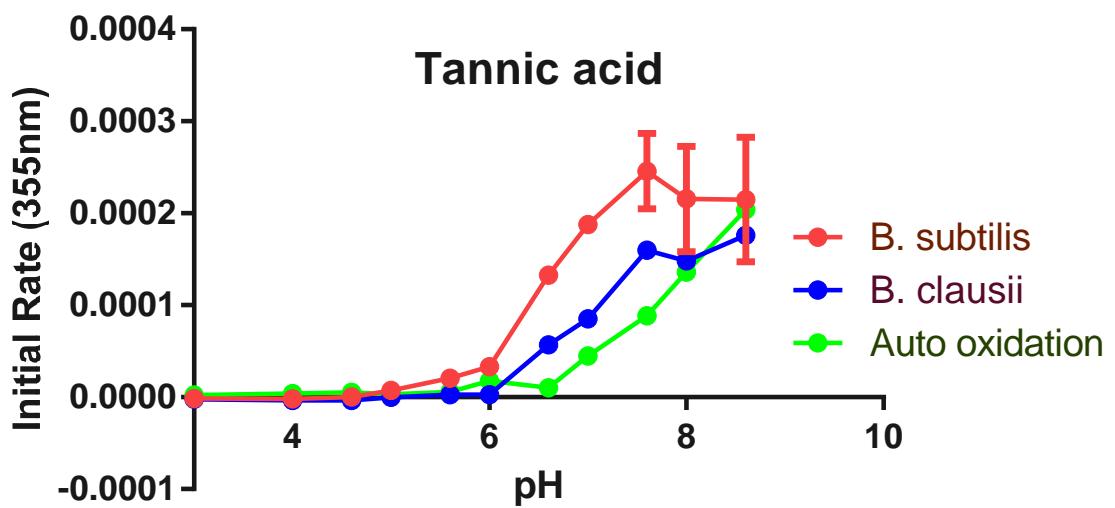


Figure S4. Residual activity of *B. subtilis* (dotted lines, squares) and *B. clausii* (solid lines, circles) cotA measured after 5 hours incubation at pH 3-10, 50°C.

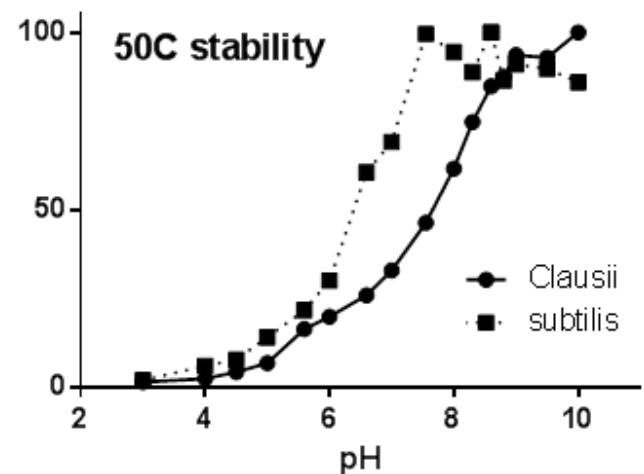


Figure S5: Residual activity of *B. subtilis* (dotted lines) and *B. clausii* (solid lines) cotA measured after 20 hours incubation at pH 5-10, 30°C. Data are in triplicate with the standard deviation error bars.

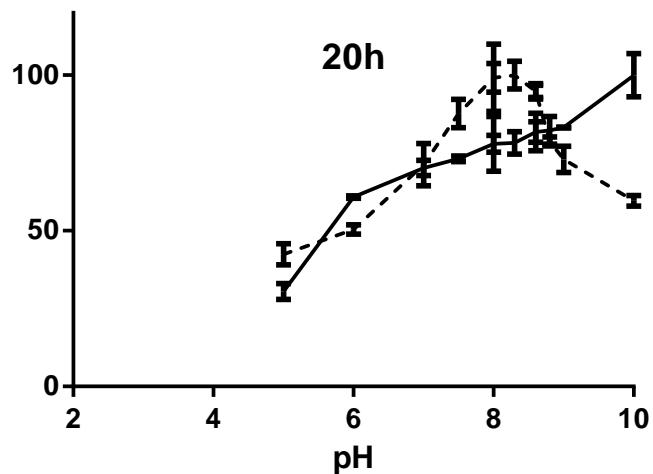


Figure S6: Michaelis-Menten analysis of *B. subtilis* cotA oxidation of DMP. Broken lines are fitted with non-competitive substrate inhibition, full lines without, giving similar k_{cat}/K_m .

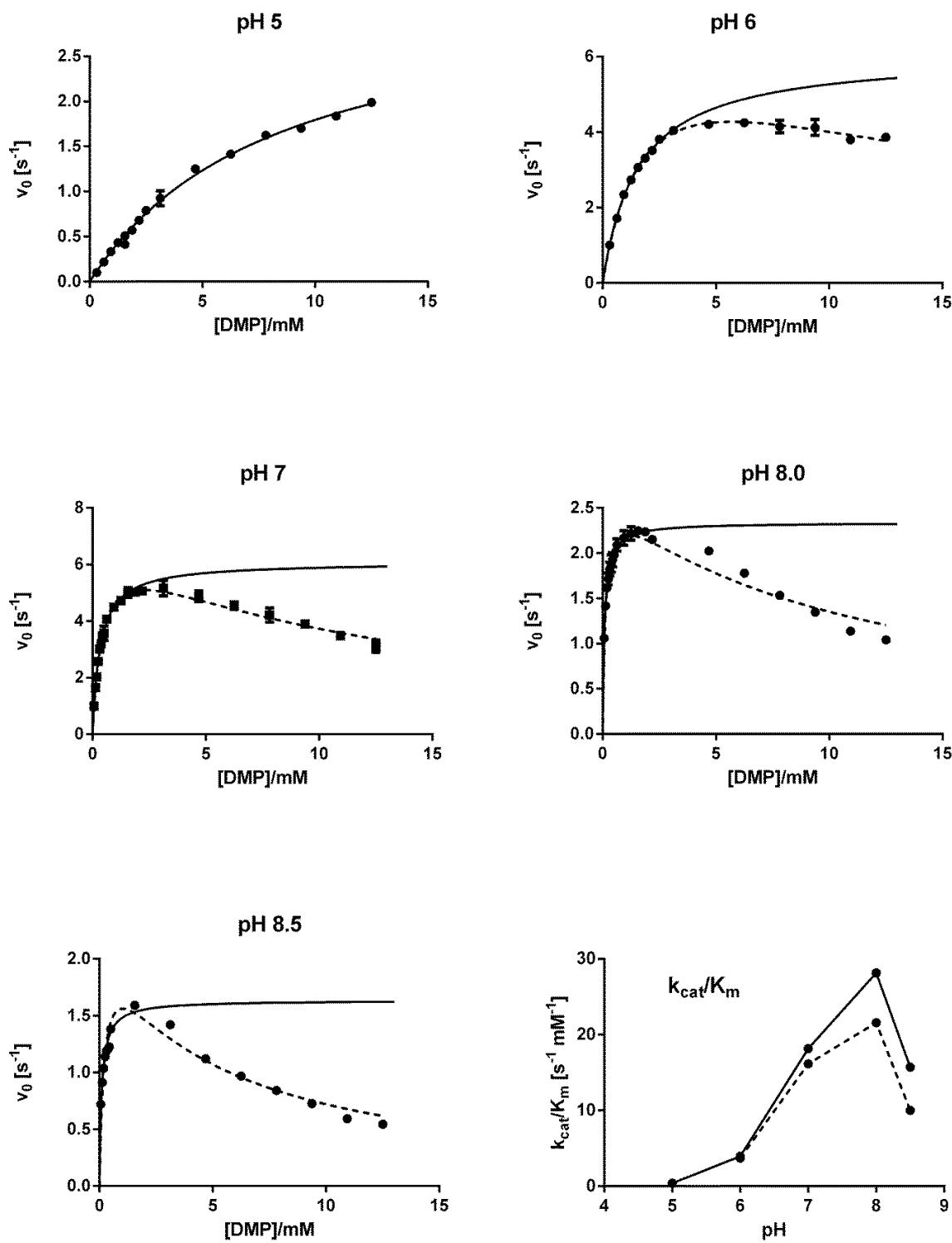


Figure S7: Michaelis-Menten analysis of *B. clausii* cotA oxidation of DMP. Broken lines are fitted with non-competitive substrate inhibition, full lines without, giving similar k_{cat}/K_m .

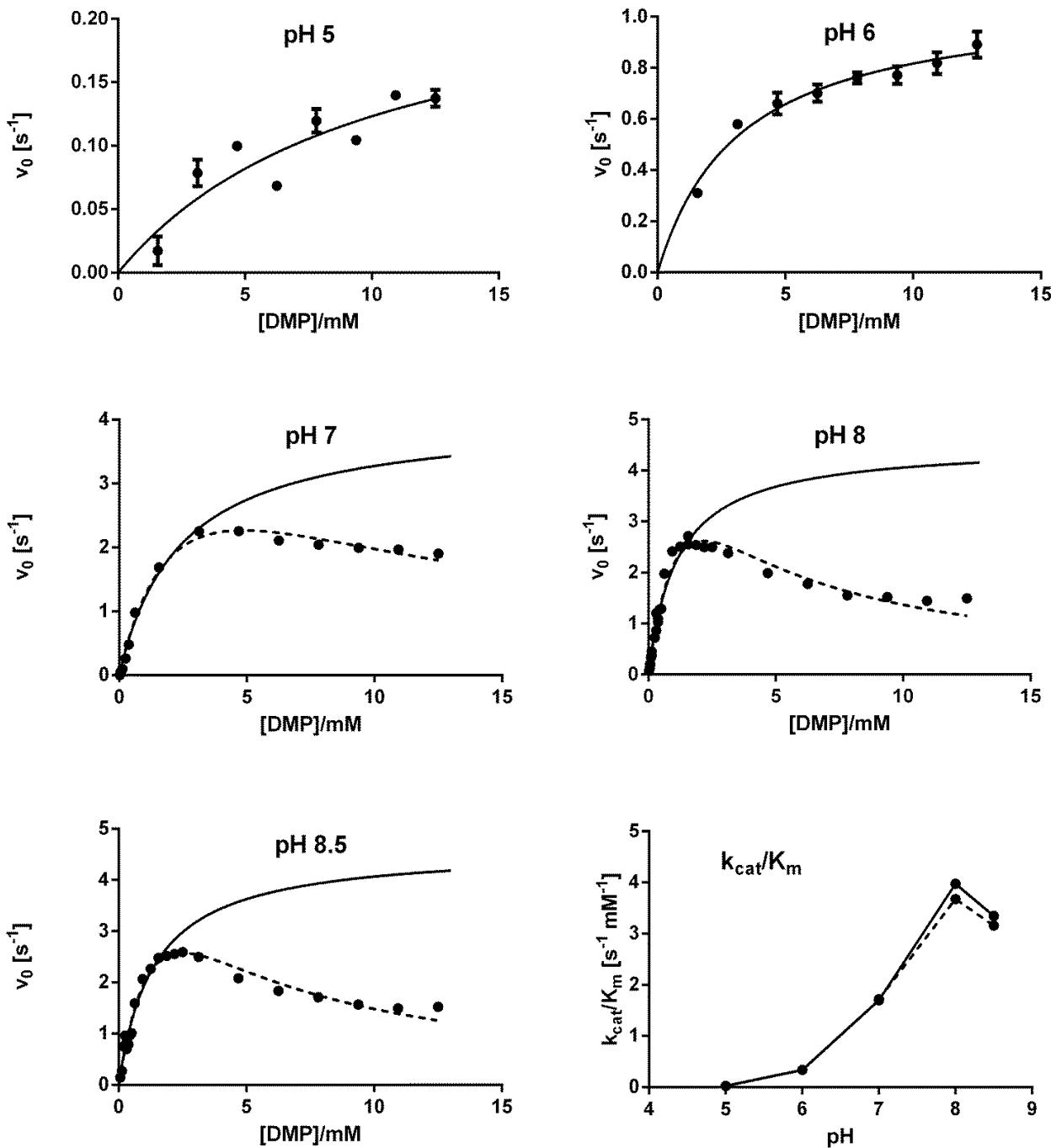


Figure S8: UV-VIS absorption profile of *B. clausii* cot A. A) Full spectrum with $\text{ABS}_{280}=1.37$ B) Zoom in on the 600nm feature with $\text{ABS}_{280}=0.052$

