

Synthetic dyes decolorization by CotA laccase of *Bacillus subtilis* spore

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In this study, we tried to decompose synthetic industrial dyes using *Bacillus subtilis* spore, which has CotA spore coat protein known as having multi-copper oxidase (laccase) activity. We confirmed the decolorization rate of Indigo carmine by 30%, Acid red 18 by 10%, and Acid green 25 by 20% in 1 hr using a wild-type *Bacillus subtilis* spore. And wild type *Bacillus subtilis* spore showed optimum decolorization activity on Indigo carmine dyes at 65°C. To express CotA protein on the surface of the spores, several anchoring motives such as CotE, CotG, CotY, and CotZ were used. His6 tag was added at the C-terminal of target protein, CotA. The spore surface expression of target protein, CotA, was confirmed by flow cytometry using FITC labelled anti-His6 antibody. Synthetic dye decolorization was tried using constructed spore displayed laccase, CotA.