

Industrial dyes decolorization by CotA laccase of *Bacillus subtilis* spores

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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, and CotY were used. His₆tag 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.