

## Indigo-Reducing Activity by Microorganisms from the Fermented Indigo Dyeing Solution

**Authors :** Yuta Tachibana, Ayuko Itsuki

**Abstract :** The three strains of bacteria (*Lysinibacillus xylanilyticus*, *Bacillus kochii*, and *Enterococcus* sp.) were isolated from the fermented Indigo (*Polygonum tinctorium*) dyeing solution using the dilution plate method and some fermentation conditions were determined. High-Performance Liquid Chromatography (HPLC) was used to determine the indigo concentration. When the isolated bacteria were cultured in the indigo liquid culture containing various sugars, starch, and ethanol, the indigo culture solutions containing galactose, mannose, ribose, and ethanol were remarkably decreased. Comparison of decreasing indigo between three strains showed that *Enterococcus* sp. had the fastest growth and decrease of indigo. However, decreasing indigo per unit micro biomass did not correspond to the results of decreasing indigo—*Bacillus kochii* had higher indigo-reducing activity than *Enterococcus* sp. and *Lysinibacillus xylanilyticus*.

**Keywords :** fermentation condition, high-performance liquid chromatography (HPLC), indigo dyeing solution, indigo-reducing activity

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