Supplementary Material (ESI) for Green Chemistry

Additional experimental information

Lactic acid production from cellobiose

For the evaluation of lactic acid production from cellobiose, experiments were performed in a 250-ml, screw cap flask at 42 °C with shaking at 150 rpm. The flask contained 100 ml production medium consisting of (per liter) cellobiose (10.0 g), $CaCO_3$ (4.5 g), and yeast extract (1.0 g) After sterilization at 121°C for 20 min, the flasks were inoculated (5% inoculum) with *Lactobacillus lactis* mutant RM2-24 grown in hydrolyzed sucrose-based medium.[15] After suitable time interval, the samples were analyzed for lactic acid and sugar.

Enzymatic hydrolysis of cellulosic substrates

The saccharification experiments were carried out in a 50 ml conical flasks with 25 ml citrate buffer (pH 4.5, 50 mM), 2.5 g of the substrate, 2.5 mg sodium azide and crude enzyme preparation from *P. janthinellum* mutant, EU1. This mixture was incubated at 50 ^{o}C with shaking at 150 rpm. The samples were analyzed for the reducing sugar after suitable time intervals.

Simultaneous Saccharification and fermentation (SSF)

SSF was carried out in a 250 ml screw cap conical flask with the production medium consisting of Avicel, α-cellulose, sigma cellulose and solka floc (10.0 g), $CaCO_3$ (5.0 g), yeast extract (1.0 g) in 125 ml citrate buffer (pH 4.5. 50 mM).The production medium was sterilized at 121°C for 20 min, the crude enzyme preparation was added, and *Lactobacillus lactis* mutant RM2-24 cells (5%) grown in sucrose based medium were inoculated. The flasks were incubated at 42 °C with shaking at 150 rpm. All the SSF experiments were performed for 72 h in media containing 10 filter paper units (FPU) g^{-1} of substrate. The initial pH of the fermentation medium was 6.5. The samples harvested at various time intervals were centrifuged at 5000 rpm for 20 min to separate the cells. The supernatant was acidified by adding an equal volume of 1N HCl, where free acid is liberated and analyzed by HPLC for lactic acid.