

## Supplementary Materials: Efficient hydrolysis of lignocellulose by acidic ionic liquids under low-toxic condition to microorganism

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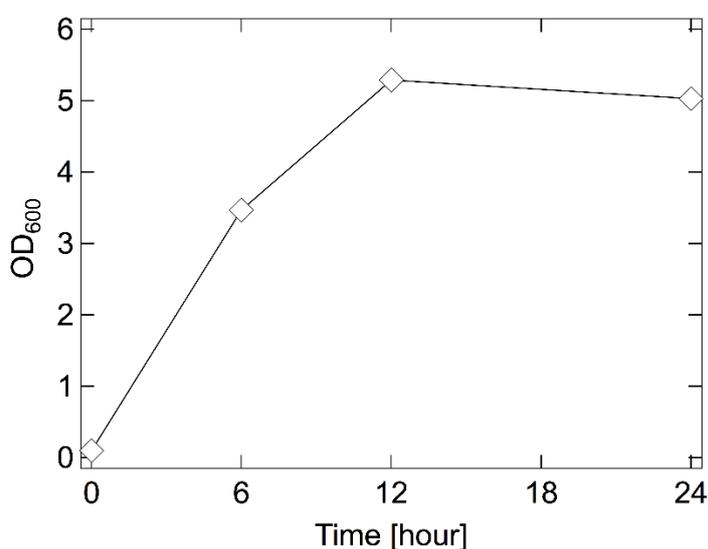


Figure S1. Time courses of OD<sub>600</sub> of a pure medium during culturing *E. coli*.

Figure S2 depicts the time courses of OD<sub>600</sub> of 1-ethyl-3-methylimidazolium acetate ([Emim]OAc)/medium mixed solutions during culturing *E. coli*. With 1.00 and 0.50 M [Emim]OAc solutions, OD<sub>600</sub> after 24 h was almost 0, indicating severe growth inhibition. On the other hand, *E. coli* grew in the 0.05 M [Emim]OAc solution, the OD<sub>600</sub> increased to 2.7 after 24 h. A similar trend was observed with [Sbmim][HSO<sub>4</sub>].

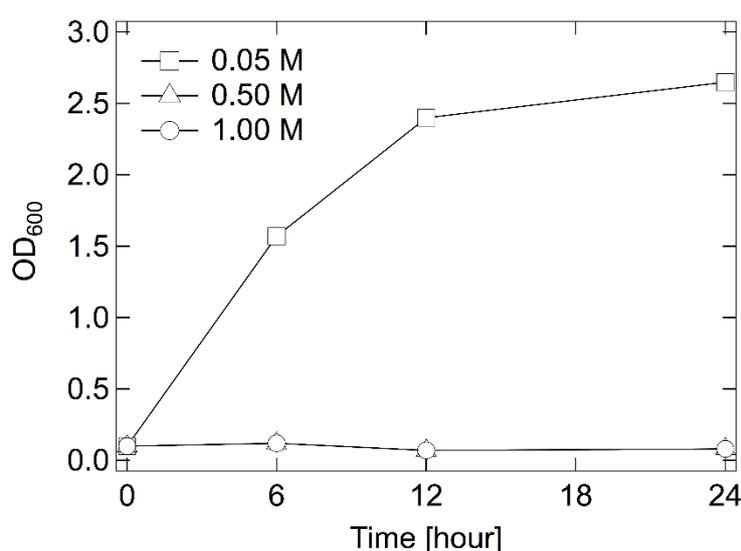
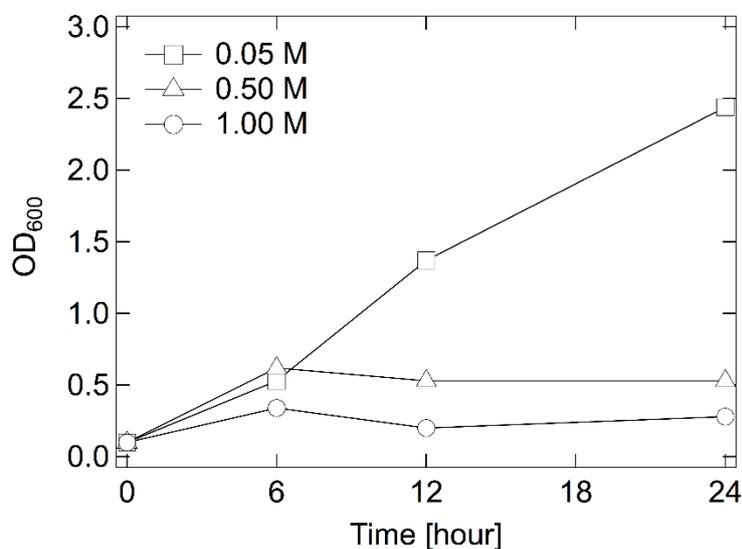


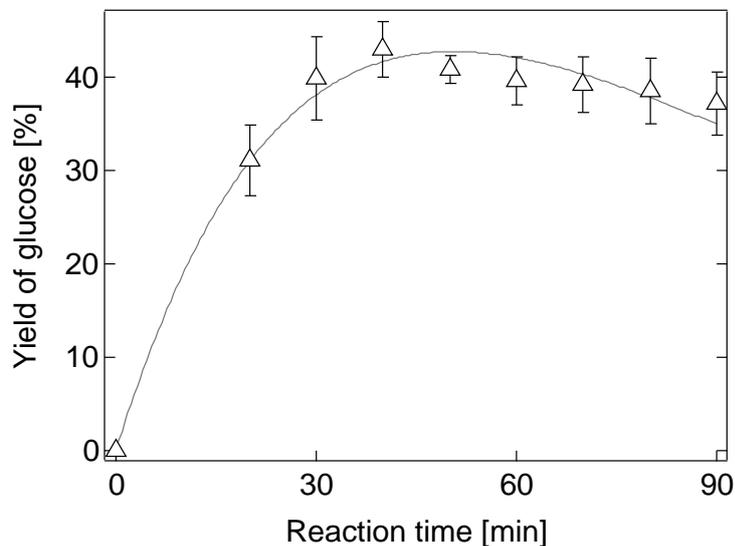
Figure S2. Time courses of OD<sub>600</sub> of [Emim]OAc/medium mixed solutions during culturing *E. coli*.

Figure S3 displays the time courses of OD<sub>600</sub> of H<sub>2</sub>SO<sub>4</sub>/medium mixed solutions during culturing *E. coli*. In 1.00 and 0.50 M H<sub>2</sub>SO<sub>4</sub> solutions, OD<sub>600</sub> values after 24 h were 0.3 and 0.6, respectively, indicating severe growth inhibition. On the other hand, *E. coli* grew in 0.05 M H<sub>2</sub>SO<sub>4</sub> solution, with OD<sub>600</sub> increasing to 2.4 after 24 h. A similar trend was observed with [Sbmim][HSO<sub>4</sub>].

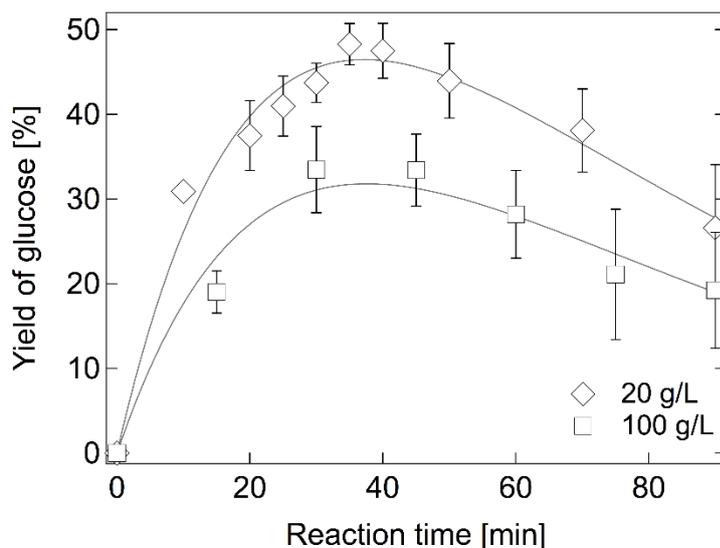


**Figure S3.** Time courses of OD<sub>600</sub> of H<sub>2</sub>SO<sub>4</sub>/medium mixed solutions during culturing *E. coli*.

Figure S4 presents the time course of glucose yield during bagasse hydrolysis in the 0.05 M [Sbmim][HSO<sub>4</sub>] solution at 180 °C. The glucose yield reached 43 % at 40 min.



**Figure S4.** Time course of glucose yield during bagasse hydrolysis in the 0.05 M [Sbmim][HSO<sub>4</sub>] solution at 180 °C.



**Figure S5.** Time courses of glucose yields during hydrolysis of 20 and 100 g/L bagasse solutions in the 0.05 M [Sbmim][HSO<sub>4</sub>] solutions at 190 °C.

Table S1 displays photographs of the samples with different bagasse loadings. In the case of 20 g/L loading, there is excess amount of [Sbmim][HSO<sub>4</sub>] solution, compared to the bagasse particles. On the other hand, almost all of the solution was absorbed by bagasse at 100 g/L. Nevertheless, hydrolysis of the bagasse proceeded, and the glucose yield and concentration reached 33% and 15.2 g/L, respectively.

**Table S1.** Photographs of the [Sbmim][HSO<sub>4</sub>] solutions with different bagasse loadings.

Bagasse concentration [g/L]	Picture
20	
100	

\*The amounts of samples in the photographs were different to make photographs definite; please see the experimental section in the manuscript for details of the conditions.