

Combining pretreatment methods on lignocellulosic biomass for reduction of energy consumption

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Lignocellulosic biomass has to be gone through pretreatment because it contains the large amount of lignin unlike cellulosic biomass. The first purpose on this process is structural decomposition of lignocellulosic biomass, and second is delignification. However, because of its high energy consumption, various pretreatment methods of different characteristics have been combining to solve this problem. In this study, physical treatment and chemical treatment were sequentially performed. Generally, physical treatment can be worked at lower energy than chemical treatment although it can help decreasing particle size and eliminating part of lignin on biomass surface. On the contrary, chemical treatment needs high energy, but it is contributed to fractionation of constituent. Thus, the pretreatment was conducted with strong point of these methods for reasonable effect at the lower energy consumption, which named 'physico-chemical pretreatment'.