

Effects of Carbon Source and Coal Particle Size on Biosolubilization of Lignite Using Mold  
*Trichoderma asperellum*

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Low rank coal such as lignite has begun to be further researched and used all over the world in order to replace petroleum demand. Usability of lignite can be improved through the process of coal liquefaction since it could produce transportable liquid fuels from coal. Coal biosolubilization which uses microorganisms as the liquefaction agent has many advantages in terms of capital cost and energy efficiency. The objective of this study is to determine the effect of carbon source and particle size of coal on biosolubilization of lignite. Lignite biosolubilization is performed with *Trichoderma asperellum* in submerged culture. From the result, it can be concluded that coal particle size does not affect the amount of humic and fulvic acid as coal biosolubilization parameters. Sucrose as a carbon source shows the best result for biosolubilization. Proximate, ultimate, and GC-MS analysis are also performed to investigate the composition of coal and supernatant after biosolubilization.