

Bioethanol and Organic acids Production from Marine Biomass Alginate.

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Marine biomass including macroalgae has been evaluated as the third generation biomass for biorefinery. *Laminaria japonica* is known to be the original source of alginate and contains other kinds of polysaccharides. However, alginate is not easy to be degraded by general microorganism, mainly due to its complicated molecular structure. As a promising technology for conversion of seaweed to ethanol, the consolidated bioprocessing (CBP) system has been being developed to avoid the needs for expensive enzymes or chemical pretreatment of biomass. For this purpose, microorganisms, which is expected to be capable of not only degrading alginate to fermentable sugar but also improving high substrate utilization and product yield, was isolated from *L. japonica* ongoing blade shading. Each isolate were identified by 16S rRNA sequence analysis and evaluated the compatibility as a strain for CBP using *L. japonica*. Also, batch were operated to produce ethanol and organic acidsn with high selectivity and high yield as well.