

Bamboo for biomass energy production

ABSTRACT

Energy consumption in human society has increased as more energy supplies are required to meet the needs of the world's growing population. However, there is a major concern about fulfilling energy demand while reducing reliance on fossil fuels. Bamboo-based biomass has great potential for use as a raw material for the production of biofuels and bioenergy. Bamboo possesses excellent fuel qualities that can be converted into solid, liquid, and gaseous biofuels. Hence, the cultivation and harvesting operations must be performed efficiently to ensure that the availability of this biomass is sufficient to meet the demand for biofuel production. Several studies have shown that the micropropagation technique has increased bamboo production and that proper bamboo plantation management can benefit both the environment and society. Nevertheless, there are several challenges in bamboo cultivation and biofuel production, such as environmental impact from land management and economic risk from the industrial supply chain. Bamboo-producing countries, including Malaysia, have initiated several policies to propose strategies for sustaining the bamboo industry.