NEW POTENTIAL BIOMATERIALS FROM KENAF FIBRE BIOMASS

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Abstract

Kenaf (Hibiscus cannabinus, L.) is a short day, annual, herbaceous plant processing high quality cellulose. The whole plant can be used as pulp in paper industry, composite industry, and electronic industry. Initially, kenaf was introduced in Malaysia as a high protein animal feed in 2000. Trend towards environmental sustainability and development of renewable resources has significantly increased interest in kenaf as potential of raw materials for the utilization of bio pharmaceutical, bio fuel such as biodiesel and bioethanol, biodegradable polymers, and also bio organic acid industries. Kenaf is found to be naturally resistant to breakdown to its structural sugars since it is a lignocellulosic material. Thus, it needs to undergo pre-treatment process either by mild acid hydrolysis or base hydrolysis in order to liberate glucose. From this process, 8.65 g/L of glucose have been produced, which equivalent to 21.63 percent of glucose conversion. Next, the fermentation process was conducted by using Lactobacillus rhamnosus as microbes to produce lactic acid. After the fermentation process, the lactic acid was then purified and being synthesis into poly lactic acid either by polycondensation method or ring opening polymerization (ROP).

Keywords: Kenaf fibre, lactic acid, fermentation, biodegradable.