

Preliminary study on enzymatic hydrolysis of treated oil palm (*Elaeis*) empty fruit bunches fibre (EFB) by using combination of cellulase and  $\beta$ 1-4 glucosidase

#### Abstract

Preliminary study on enzymatic hydrolysis process using combination of cellulase and  $\beta$  1-4 glucosidase on treated oil palm empty fruit bunch fibre (EFB) was performed. Crucial trends for parameters such as pH, temperature and substrate loading influencing the enzymatic hydrolysis of the treated EFB fibre were also studied. Results revealed that a combination of both cellulase and  $\beta$  1-4 glucosidase with the ratio of 5:1 hydrolyzed more cellulose from treated EFB fibre and gave highest soluble glucose concentration up to 4 g L<sup>-1</sup>. The results indicated that as pH and temperature were increased the glucose produced also increased until pH 4.8 and 50 °C; beyond these values the reverse occurred. Glucose produced in the reaction increased with the increment in the substrate loading and maximum glucose concentration (2.7 g L<sup>-1</sup>) was achieved when 8% (wv-1) treated EFB was used as a substrate.