

## **Effects of temperature and time on the morphology, pH, and buffering capacity of bast and core kenaf fibres.**

### **ABSTRACT**

This study investigated the effects of heating on the morphology, pH, and buffering capacity of bast and core kenaf fibre. The bast material yielded longer and thinner fibres (with a higher aspect ratio) compared to the core. Changes in fibre morphology were clearly visible when the temperature of pulping was increased. The morphology of the bast fibre displayed significant variations following treatment at different pulping temperature (150, 160, 170, and 180 °C), time (1, 2, and 3 hours), and with the interaction between both parameters. Core fibre also exhibited significant variation in length, width, and wall thickness in all parameters, but lumen diameter and aspect ratio were not significantly affected by the same processing conditions. The pH value of both fibres was reduced as the temperature increased; core fibre was more acidic compared to bast fibre. Bast fibre exhibited greater acid buffering capacity and core fibre greater alkaline buffering capacity.

**Keyword:** Fibre characteristics; Buffering Capacity; Kenaf core; Kenaf bast.