



CHAPTER 6

CONCLUSIONS

The following conclusions may be drawn from the results of this work concerning heat capacity, kinetic parameters and thermal conductivity on rice hull pyrolysis under the following conditions : bulk density of 113.50 to 141.40 kg/m³, moisture content of 0.11 to 24.04% and temperature of 350 to 500 °C.

1. Heat capacity of rice hulls increases linearly with temperature while it is more influenced by moisture content than temperature. Heat capacities of fresh rice hulls are higher than for rice hull char.

2. The data on the pyrolysis of rice hull can be analysed in terms of an overall first order reaction which provides a simple model to explain pyrolysis rate.

3. Analysis of the data with pyrolysis model using a nonlinear least squares regression method gave $E = 6715 \text{ J/mol}$ and $A = 0.45 \text{ 1/min}$

4. The final bulk density of the rice hull char varies with the temperature, moisture content and bulk density achieved under the experimental conditions.

5. The absorbed moisture mainly delayed the pyrolysis process.

6. The thermal conductivity value determined by fitting temperature profiles was influenced by temperature and bulk density during pyrolysis.



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