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MICROWAVE INDUCED THERMAL PROCESSING OF BIORESOURCES AND BIODIESEL FROM OIL PALM PLANTATION

Energy uncertainty that fluctuates the cost of petroleum has move the attention of researchers toward renewable energy and sustainable materials sources. Bioresources and crop oils are available in abundantly and cheap sources that are environment friendly in tropical countries. It has been identified as one of the main sources of the sustainable and renewable energy and materials in Malaysia. Malaysian experience on oil palm cultivation could open the needs for food, bio-chemicals, energy and material supplies for the other countries using suitable crops plantation. An example of utilization of biomass is in the processing of palm oil industries. The presentation describes several possible routes to provide energy as well as potential value-added products from bioresources. The trend in thermo-conversion processing of the biomass is the application of microwave energy into renewable biofuels, materials and chemicals. The potential uses of agro-products and agro-solid wastes for biofuels, materials and chemicals are highlighted. The applications of these biofuels, materials and chemicals have been applied in some countries around the world. The implementation and utilization of this technology will be feasible when the technology is developed, fabricated and commission locally with locally produced biomass. With advanced research and development efforts, together with local expertises, indigenous technologies could be developed and produced, thus reducing the high cost of import technologies.

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