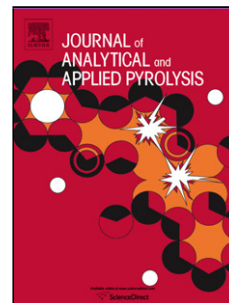


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Microwave-assisted co-pyrolysis of microwave torrefied biomass with waste plastics using ZSM-5 as a catalyst for high quality bio-oil

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Highlights:

- Biomass torrefied via microwave heating enhanced both the quantity and quality of bio-oil.
- Parameters optimization of catalytic microwave co-pyrolysis of biomass and LDPE for bio-oil.
- Temperature and catalyst dosage were key factors influencing both bio-oil yield and selectivity.
- The proportion of hydrocarbons was the highest (about 40%) in the bio-oils.

Abstract: This study aims to produce high quality bio-oil by microwave co-pyrolysis of torrefied biomass (rice straw) and low density polyethylene (LDPE) using ZSM-5 as a catalyst. A central composite experimental design was used to optimize the reaction condition by response surface methodology analysis. The effects of reaction temperatures and catalyst dosages on the product yield and chemical selectivity of bio-oil were investigated. Results

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