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Cattle manure pyrolysis process: kinetic and thermodynamic analysis with isoconversional methods

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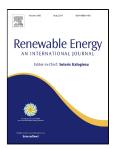
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#### **ACCEPTED MANUSCRIPT**

### Highlights

- TG experiments of cattle manure are addressed with six different heating rates.
- Four isoconversional methods are adopted for kinetic characteristics analysis.
- Pyrolysis process of cattle manure is a complicated multi-step reaction process.
- Each constituent of cattle manure has respective dominating pyrolysis ranges.
- Apparent activation energy increases with increasing pyrolysis temperature.

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