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# A combined theoretical-experimental investigation on the mechanism of lignin pyrolysis: Role of heating rates and residence times

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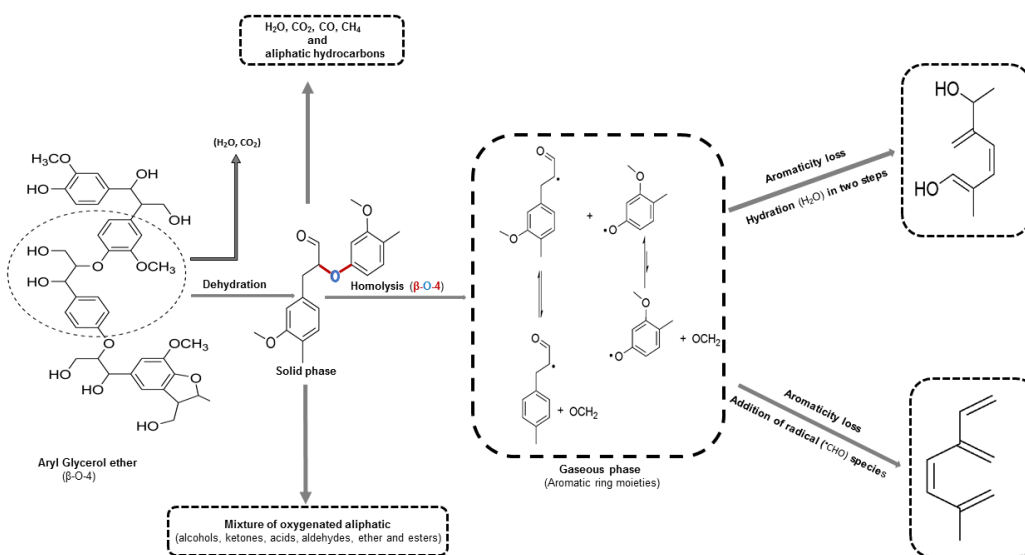
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**Highlights** A theoretical-experimental study from lignin pyrolytic degradation is reported

- Thermochemical analysis indicate that degradation occurs through C $\beta$ -O breaking.
- The products yield is influenced by the phenomena of heat and mass transfer.
- A hypothesis about of aromaticity loss during lignin pyrolysis is suggested.
  - Kinetic parameters were calculated by using model-free-kinetics methods.

## Graphical abstract



## Abstract

This work provides a combined theoretical-experimental investigation on the relationship between structural features and energetic requirements of pyrolytic

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