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# The mechanisms and consequences of inorganic reactions during the production of ferrous sulphate enriched bamboo biochars

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## Highlights:

- Ferrous sulphate reacted with bamboo char substantially during pyrolysis
- Magnetite, was produced in bamboo char heated above 250°C
- Residual sulphur spread through the char matrix in organic and inorganic forms
- Impregnated samples retained less C at high temperatures and no carboxyl groups
- An Fe oxide reaction sequence is proposed using NH<sub>3</sub> and ferric sulphate catalysts

## ABSTRACT

Magnetic biochars are implicated in graphene micro-crystallite formation, soil redox processes and highly adsorbent chars. This study investigates the mechanisms of bamboo charring – when impregnated with FeSO<sub>4</sub>·7H<sub>2</sub>O - at 250, 350, 450 and 550°C, using thermal and static techniques.

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