

## Accepted Manuscript

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PII: S0141-8130(18)32926-X  
DOI: [doi:10.1016/j.ijbiomac.2018.08.046](https://doi.org/10.1016/j.ijbiomac.2018.08.046)  
Reference: BIOMAC 10290

To appear in: *International Journal of Biological Macromolecules*

Received date: 13 June 2018  
Revised date: 13 July 2018  
Accepted date: 9 August 2018

Please cite this article as: Michele Michelin, Simon Liebentritt, António A. Vicente, José António Teixeira, Lignin from an integrated process consisting of liquid hot water and ethanol organosolv: Physicochemical and antioxidant properties. *Biomac* (2018), doi:[10.1016/j.ijbiomac.2018.08.046](https://doi.org/10.1016/j.ijbiomac.2018.08.046)

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Original Paper

## **Lignin from an integrated process consisting of liquid hot water and ethanol organosolv: physicochemical and antioxidant properties**

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### **ABSTRACT**

Corn cob was successively pretreated by liquid hot water (LHW) and ethanol organosolv (EO) in an integrated process. LHW was performed at 200 °C for 30 min, and EO was performed using uncatalyzed ethanol–water solutions, according to a design of experiments. The effects of the most influential operational variables (ethanol concentration, temperature and time) on yield and chemical composition of the fractions were assessed. Results showed the factor with the greatest effect was ethanol concentration ( $p < 0.05$ ), leading to a high-purity lignin (86.7%–93.1%) with a

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