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Characterization of Kraft Black Liquor properties for sustainable contributions in electrochemical cells

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Introduction and Objectives

- Kraft black liquor (KBL) electrolysis is a strategy for carbon synthesis, green hydrogen production, and product recovery in electrochemical cells [1,2,3].
- Objective: to process, characterize and identify physicochemical and electrochemical properties of aqueous solution of kraft black liquor (ASKBL), aiming at applications as a sustainable electrolyte in electrochemical cells [4].

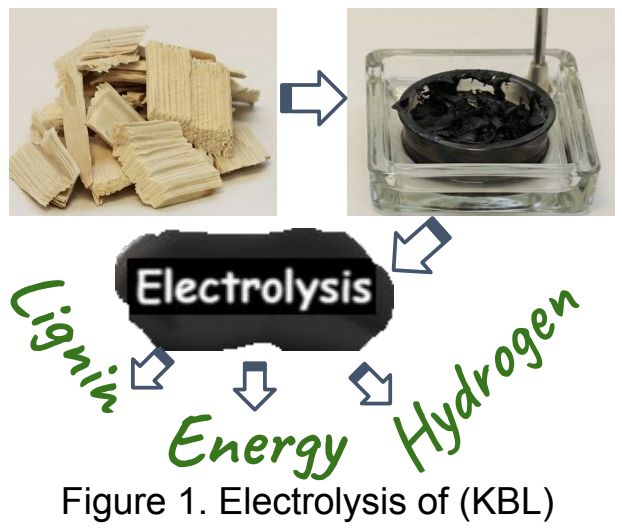


Figure 1. Electrolysis of (KBL)

Methodology

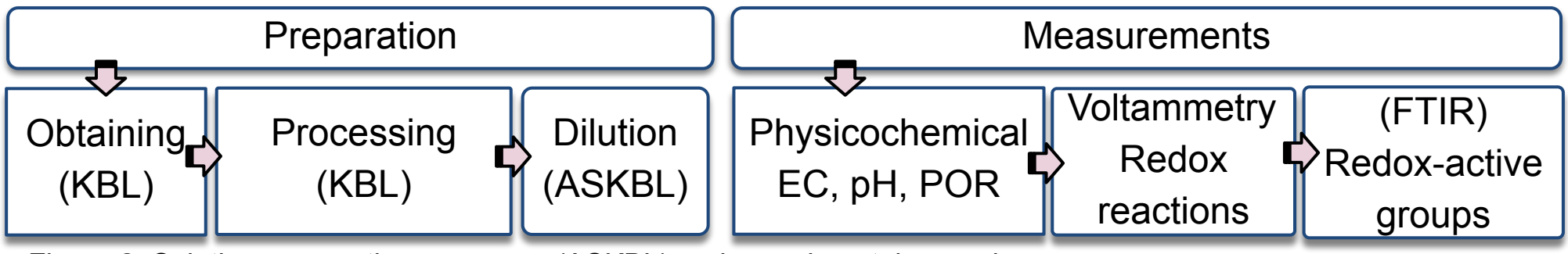
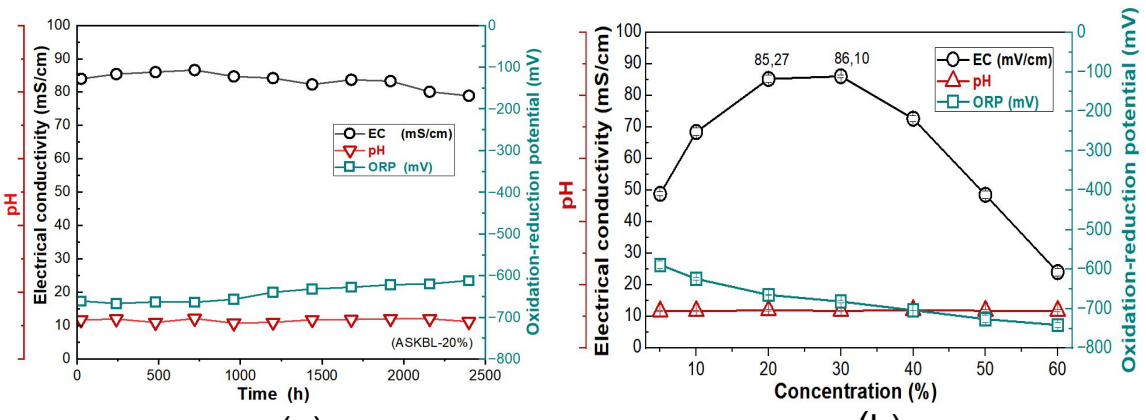


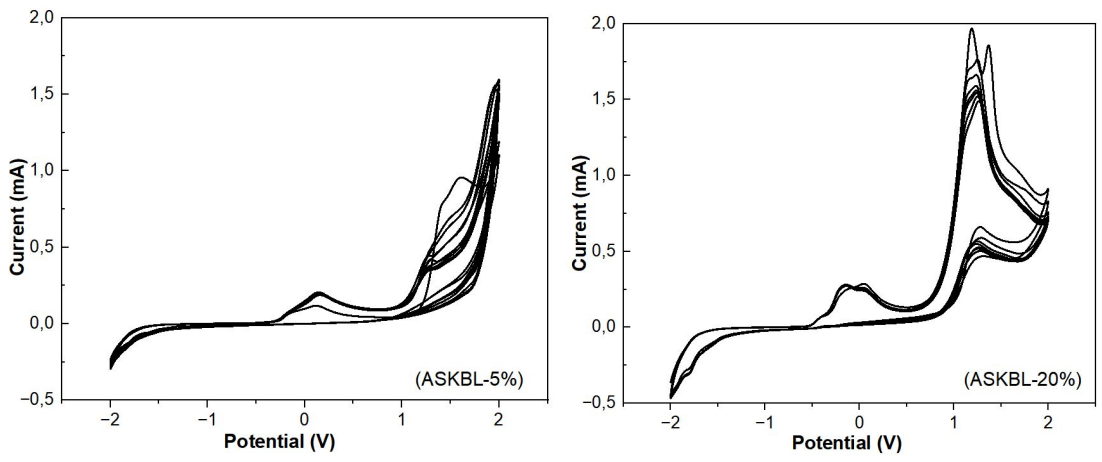
Figure 2. Solution preparation sequence (ASKBL) and experimental procedures

Results and discussion



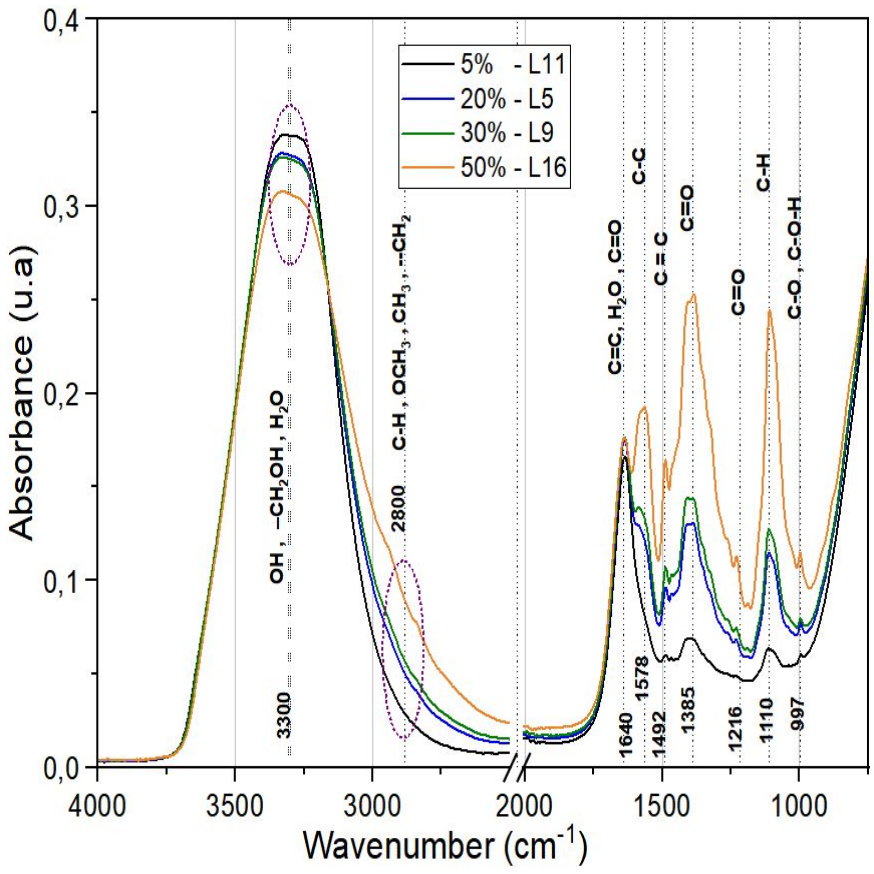
(a) (b)

Graph 1: Electrical conductivity, pH, and redox potential.
a) function of time. b) function of concentration



(a) (b)

Graph 2: a)voltammetry (ASKBL-5%). b)voltammetry (ASKBL-20%)



Graph 3: FTIR spectra (ASKBL - 5% to 50%)

Conclusions

The results confirmed the excellent potential of the (ASKBL) solution for use as an electrolyte in sustainable electrochemical cells for energy conversion and storage.

Acknowledgments

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