



# Nanoarchitectonics of low process parameter synthesized porous carbon on enhanced performance with synergistic interaction of redox-active electrolyte for supercapacitor application

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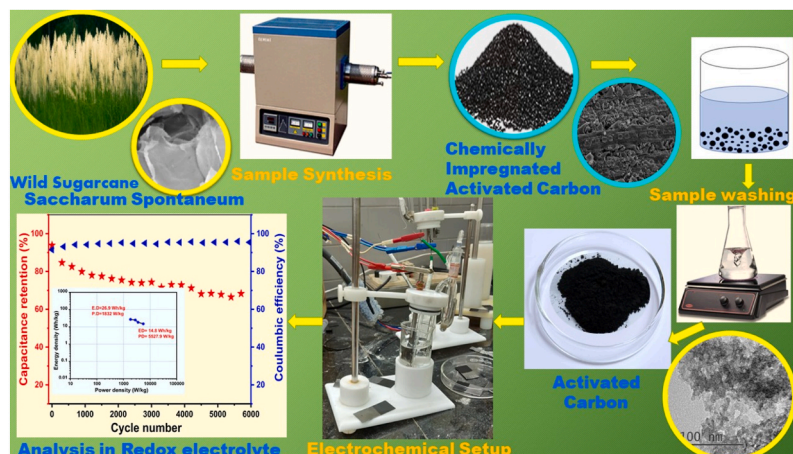
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## HIGHLIGHTS

- Low-cost, high-performance supercapacitor based on activated carbon electrode material was derived from wild sugarcane.
- The synthesized carbon has large surface area of  $\sim 1294 \text{ m}^2 \text{ g}^{-1}$  with microporous as well as mesoporous structure.
- A high cyclic stability of 80 % was observed for 5000 cycles in full-cell configurations.
- The redox-active symmetric supercapacitors show a high energy density ( $26.9 \text{ W h kg}^{-1}$ ), with long-term cyclic stability.

## GRAPHICAL ABSTRACT



## ARTICLE INFO

### Keywords:

Energy storage materials  
Electrochemical capacitors  
Biomass valorization

## ABSTRACT

To develop materials of lower embodied energy and materials footprint for energy storage industry, the present work reports synthesis of porous carbon from a waste wetland weed (wild sugarcane) using low process parametric conditions (temperature and impregnation ratio) and their electrochemical capacitive (synonymously known as supercapacitors) charge storage performance in aqueous and redox active electrolytes. The phase,

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