*PhD. Thesis Defend Examination*

# Improvement of Direct Ethanol Fuel Cell - Supercapacitor Hybridization Performance by Synthesis of an Electrocatalyst Support from Biomass


**Presented by**

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***SKYLINE*** meeting room
(Science and Technology Research Institute (STRI))



## Highlight Summary

This research explores the valorization of sugarcane residues into porous carbon materials for energy conversion and storage. Biomass-derived carbons from bagasse and leaves were synthesized and employed as supports for advanced Pt-based catalysts in direct ethanol fuel cells (DEFCs), while also being applied as supercapacitor electrodes. The study demonstrates a sustainable pathway to transform agricultural waste into high-performance carbon materials for next-generation green energy technologies, including a proof-of-concept hybrid DEFC–supercapacitor system.



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