

BIOCHAR-BASED CATALYST SUPPORT LAYER

ABSTRACT OF THE DISCLOSURE

5 The present utility model concerns a catalyst support layer
for proton exchange membrane fuel cells (PEMFCs), comprising a
carbon film made from biochar derived from water hyacinth
(*Eichhornia crassipes*), uniformly blended with polyvinylidene
fluoride (PVDF) binder at a 50:50 weight ratio. The carbon film
10 demonstrates suitable morphological and surface characteristics,
including hydrophobicity and disordered carbon structure, which
render it effective as a catalyst support layer in PEMFC
applications. This catalyst support layer offers a sustainable
and cost-effective alternative to commercial carbon supports by
15 utilizing invasive biomass waste.