IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 12, April 2025
Impact Factor: 7.67

Eichhornia Crassipes (Water Hyacinth): Sustainable Solution to Environment and Employment

Prathamesh. S. Dhanarale[1], Isha. S. Jagtap[2], and Prathmesh Lokhande[3]
Department of Civil Engineering[1-3]
Sandip Polytechnic, Nashik

Abstract: *Eichhornia crassipes, commonly known as water hyacinth, is a highly invasive aquatic plant that poses significant ecological and socio-economic challenges worldwide. Its rapid proliferation depletes oxygen levels in water bodies, obstructs waterways, disrupts aquatic biodiversity, and accelerates siltation, thereby threatening ecosystems and human livelihoods. Despite these negative impacts, water hyacinth also offers promising opportunities for sustainable utilization due to its rich biochemical composition. It has potential applications in bioenergy production, biofertilizers, wastewater treatment, pharmaceutical research, cardboard manufacturing, and briquette production as an alternative fuel source. This study explores the dual nature of Eichhornia crassipes, emphasizing both its environmental threats and economic potential. By assessing innovative management strategies and harnessing its bioactive compounds, this research aims to contribute to sustainable solutions that mitigate its negative effects while promoting its constructive use. A comprehensive understanding of its ecological impact and economic value can inform policy decisions and integrated management strategies to balance control efforts with resource utilization.*

Keywords: Eichhornia crassipes, water hyacinth, invasive species, bioenergy, wastewater treatment, sustainable utilization, cardboard production, briquettes, alternative fuel, eco-friendly materials

DOI: 10.48175/IJARSCT-25912