

Azolla: A Sustainable Resource for Human Welfare and Environmental Management

Bapu Sonawane¹, Ranajeet Shanbhag², Arun Dixit², Laxman Gavali³, Gurumeet Wadhawa⁴

Research Scholar, Department of Chemistry

Rayat Shikshan Sansthas Karmaveer Bhaurao Patil College, Vashi¹

Design Innovation Center, Vigyan Ashram Pabal, Pune²

Professor, Department of Chemistry, Rayat Shikshan Sansthas Karmaveer Bhaurao Patil College, Vashi³

Assistant Professor, Department of Chemistry, Rayat Shikshan Sansthas Veer Wajekar ASC College, Phunde, Uran⁴

Abstract: *Azolla, a small aquatic fern, has garnered scientific attention due to its rapid growth, high nutritional value, and symbiotic nitrogen fixation capabilities. This paper explores the diverse applications of Azolla in human life, including its role in sustainable agriculture, animal husbandry, environmental conservation, and potential contributions to human nutrition. The study highlights the benefits of Azolla as a biofertilizer, livestock feed, wastewater treatment agent, and climate change mitigator. Additionally, emerging research on its use in biotechnology and biofuel production is discussed. Future research directions and policy recommendations for the large-scale utilization of Azolla are also presented*

Keywords: Azolla, biofertilizer, livestock feed, environmental sustainability, human nutrition, biotechnology

