

An overview of marine macroalgae as bioresource

K.Sudhakar^{ab}; R.Mamat^c; M.Samykano^c; W.H.Azmi^c; W.F.W.Ishak^d; TalalYusaf^e

^a Automotive Engineering Centre, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

^b Energy Centre, Maulana Azad National Institute of Technology Bhopal, 462003, India

^c Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

^d Faculty of Bioengineering & Technology, Universiti Malaysia Kelantan, 17600 Jeli, Kelantan, Malaysia

^e School of Mechanical Engineering, University of Southern Queensland, Toowoomba, QLD 4350, Australia

ABSTRACT

Environmental, economic and political pressures have driven the interest towards the search of sustainable feedstock for biofuel production. At present, macroalgae (green, brown and red marine seaweed) is getting growing consideration as an alternative resource for sustainable biomass to produce biofuels, biochemical and food. The unique chemical composition and wide variation in the availability create various opportunities and also challenges for bio-based energy production. Recently, numerous studies have taken place in the exploitation of seaweed as carbon sources for the bioethanol production. Thus, this paper attempts to highlight the characteristics, processing techniques and potential applications of the seaweed. The present review also focuses on recent innovative approaches for the sustainable production of bioenergy from seaweed.

KEYWORDS:

Macroalgae; Biofuels; Bioenergy; Anaerobic digestion