

## Algae Biomass as Alternatives to Wood Pulp in Handmade Paper Technology

**Authors :** Piyali Mukherjee, Jai Prakash Keshri

**Abstract :** Anticipated shortages of raw materials for paper industry have forged the entry of algae as alternatives to wood pulp. Five algal species: Pithophora sp., Lyngbya sp., Hydrodictyon sp., Cladophora sp. and Rhizoclonium sp. were collected from different parts of Burdwan town, West Bengal, India. Their biomass compositional values were determined with respect to eucalyptus wood pulp. Paper characteristics were studied in terms of breaking length, tensile strength, CI index, pH, brightness, recyclability, and durability. Hydrodictyon sp., besides Rhizoclonium sp. and Cladophora sp. were established as the most suitable candidates for paper pulp formulation in terms of high cellulose, hemicelluloses contents and low lignin and silica contents. Paper from pure Hydrodictyon sp. pulp was found to have statistically significant ( $p < 0.05$ ) improved breaking-length and tensile strength properties compared to that obtained from Lyngbya sp.

**Keywords :** algae, biomass, paper, pulp, wood

**Conference Title :** ICABB 2019 : International Conference on Algae Biofuels and Bioenergy

**Conference Location :** Tokyo, Japan

**Conference Dates :** April 22-23, 2019