

**Subject: PG Elective course for Environmental Science/biological science/chemistry/Agriculture**  
**Course: Biomass characterization**

**Development Team**

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**Module Title : 1. Biomass as a source of energy**  
**Id : BSE/IBPS/1**

Pre-requisites: Photosynthesis, organic matter, agricultural residues, various sources of organic wastes.

Objectives : To study

- the biomass energy
- the principles of biomass energy conversion
- the biomass feedstocks
- biomass primary and secondary biomass production

Keywords : Organic matter, Biomass, bioenergy, agriculture residues, biomass feedstock

Learning outcome :The learners acquire the overall knowledge about the biomass, principles of biomass energy, types of biomass production as well as the various biomass feedstocks.

## **Biomass as Source of energy**

### **1.1 What is biomass?**

Biomass represent organic matter derived from living organism (Basker et al.,2012) including plant litter, wood, crop residues, algae, animal wastes etc. It is a source of green energy. Biomass is probably an oldest source of energy after the sun. Since ancient times,