ISBN: 9798559371443

# Chapter-12 Various waste fillers used for eco-friendly polymer composites

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**Abstract:**

Environmental sustainability is the supreme challenge to the research community. Recently, waste minimization and utilization are created major impact in various fields and polymer composite is one among them. In this chapter, powdered form of several organic waste materials used in biocomposites manufacturing is investigated. The objective of this chapter is exploring various possibilities of a particulate form of organic waste materials utilization in polymer composites. The typically used natural waste disposal techniques are burning and land-filling. However, these methods lead to consequences like evolution of toxic gases during burning and this again leads to air pollution. Therefore, preparation of polymer composites using these natural wastes is the appreciable way to safeguard the environment.

## 12.1 Introduction:

Petro-based plastics are versatile and highly non-biodegradable in nature and caused a critical environmental problem. In addition they have more resistance to sunlight, heat and humidity owing to their unique composition and backbone structure [1]. Mitigation of the environmental problems and resolution of the waste management issues raised by these non-biodegradable polymers can be accomplished by the partial replacement of petro based polymers with naturally available fillers [2].

In the current scenario, the scientific world is looking into the usage of bio materials as the fillers in the domain of polymer composites owing to the unique properties of the biomaterials that are better mechanical strength, plenty of availability, non-corrosiveness, low cost and density, low equipment abrasiveness, light weight and high toughness, good thermal properties, environmental friendly, renewability and more importantly their biodegradability [3-5]. Moreover, natural fibre reinforced polymer composites are comparatively more cost effective than the synthetic fibre reinforced polymer composites.