Design and construction of natural fibre polymer composites for large scale applications

The reduction in harmful of ecosystem and to produce low cost polymeric reinforced composites, the researchers are emerging with polices of manufacturing the composites using natural fibres which are entirely biodegradable. Various researches are going on in this field to achieve the desired standard. Natural fibre reinforced polymer composite has a huge affinity to replace the composite made up of synthetic fibre. This is primarily because of the advantages like light weight, non-toxic, non-abrasive, easy availability, low cost and biodegradable properties. The synthetic fibres have higher end of mechanical properties like tensile strength and tensile modulus however the specific mechanical properties like specific tensile modulus and specific gravity of natural fibre gives a satisfying result for composites as compared to synthetic fibre based composites. Also the manufacturing process of synthetic fibre used bad effects of toxic chemicals like sulphuric acid, carbon disulphide, nitric acid, ethylene glycol, dimethyl form amide and barium sulphate etc so disease like central nervous system, liver damage, headache, skin rashes etc caused by humans using these chemicals.

The objective of the present study is to investigate and develop the mechanical and thermal behaviour of bamboo fibre reinforced with Poly lactic acid based composites and develop better processes must be minimize the adhesion between fibre and matrix, moisture absorption, fire hazard etc.