

World Congress on
BIOPOLYMERS AND BIOPLASTICS
 &
 World Congress and Expo on
RECYCLING

August 29 -30, 2018
 Berlin, Germany

Utilization of banana plant agricultural waste for the manufacture of bio-composites

V Paul

Durban University of Technology, South Africa

Agricultural wastes produce a large amount of biomass that presents a threat to the environment. Once the fruit is harvested, the banana plant is left to rot and has no further use. Our research has utilised the sap of the locally grown banana plant (*Musa cavendish*) to produce a hybrid bio-resin which was reinforced with the banana fibres to form a bio-composite. The mechanical (tensile, flexural and impact) and thermal (thermogravimetry analysis and differential scanning calorimetric) and biodegradability properties of the bio-resin and bio-composite were conducted. These results were compared to a control sample without the banana sap in the resin formulation. The tensile modulus and strength showed improved results

as compared to the control sample. The flexural modulus and strength also showed increased results as compared to the control samples. The result showed improved and comparable mechanical and thermal properties of bio-composites suggesting the possible application in automotive industries. Biodegradability test proved that the biocomposite showed evidence of decomposition over a period of time. The cellulose fibres from the waste banana plant have great potential as a reinforcing material due to its abundant availability, light weight, renewable, biodegradable, and cost effective. Waste biomass such as banana plant waste can be a useful commodity for various applications and sustainability.

Biography

V Paul was expertized in General and Inorganic Chemistry for Chemical Engineering and Analytical Chemistry, Inorganic Chemistry II and III. Textile science, Science for Somatology, Chemistry practicals 1, 2 and 3. Btech Practicals and project supervision Chemistry industry. Academic interests Improving teaching methods in Chemistry. Inorganic Chemistry and industrial applications.

vimlap@dut.ac.za

Notes: