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Wheat Bran fiber as resources for industries

Khwaja G Hossain
Mayville State University, USA

In recent years, the utilization of fibers from agricultural crops has emerged as a renewed interest in different industries because they are environmental friendly, reusable and recyclable resource. A wide range of agricultural fiber products are already appearing on the market however most of these products are made from flax and hemp fibers. Wheat is a major cereal grain in the US and the world and the bran fraction of wheat grain constitutes approximately 14.5% of total milling. Recently, we have analyzed the lignocellulosic components of wheat bran and observed that it could potentially be used as resources in various industries. Our objectives were to utilize surface treated wheat bran to reinforce thermoplastic, high temperature burned bio char for reducing water pollutants and isolation and characterization high-molecular weight polysaccharide for using as biobased nanoparticle. Wheat bran was treated with NaOH and investigated its potential for reinforcement in thermoplastic biocomposites. Composites were prepared using untreated and treated bran with polypropylene matrix in varying bran fiber loading rates. The mechanical properties showed a 16.3% increase in flexural strength and comparable tensile strength with net polypropylene at 20% or more fiber loading compared to respective controls.

Biography

Khwaja G Hossain completed Ph.D. from the University of Wales, Aberystwyth, UK in 1995 and postdoctoral studies from Chiba University, Matsudo, Japan and North Dakota State University, Fargo, ND, USA. Currently working as a professor at Mayville State University, Mayville. He has published more than 40 papers in reputed journals. A recepient of several federal and state grants, leading research projects in biological and material sciences.

k.hossain@mayvillestate.edu