BIODEGRADABLE COMPOSITE MATERIALS BASED ON POLYMERS MATRIX AND ORGANIC FILLER

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Abstract.

The biodegradable agro-fillers polymer composite could be an alternative to the conventional plastic materials. These polymers composite being biodegradable can be disposed in safe and ecologically effective manner, through composting or burial in the soil. Natural fibers from agricultural wastes are finding their importance in the polymer industry due to the many advantages such as their light weight, low cost and being environmentally friendly. As a type of natural fiber obtained from agro industrial waste, rice husk and sunflower husk can be used as fillers in composites materials in various polymer matrices.

The biodegradable composites on base of polymer matrix (polypropylene, polylactide) and organic filler powders are prepared in the form of pressed disks and extrusion bands. In the quality of organic fillers are used the rice and sunflower husk powders with particles dimension up to 0,5 mm. It is established that the composite material in the system «husk - polymer» contains the particles of filler disposed in polymer matrix randomly as confirmed by scanning electron microscopy. The composites «sunflower husk (Ukraine) - polylactide INGEO™ - 4043d» where produced in the disk forms by hot pressing method. Rice husk-filled polypropylene composite bands were prepared by extrusion method. The materials after preparation have been subjected to biological decomposition in the laboratory composting conditions.

Keywords: Biodegradable composite, polymers, polypropylene, polylactide.