POLYLACTIC ACID COMPOSITES WITH VEGETABLE FIBERS FOR APPLICATIONS IN PACKAGING INDUSTRY

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ABSTRACT

The companies SYNPO, akciová společnost, and SPA 2000 s.r.o. in cooperation with scientists from the University of the Azores, Portugal, and from the University of Oviedo, Spain, are involved in the development of a new type of biodegradable polymer composite usable as a packaging material, especially in the food industry. This composite consists of a biodegradable polymer based on polylactic acid reinforced with plant fibers with the addition of antibacterial glass. The plant fibers used, provided by the University of the Azores, were obtained from a *Hedychium gardnerarium* plant. This highly invasive plant represents a significant problem for the environment of the Azores and must therefore be eradicated. The commercial use of the fibers from this plant would thus reduce the financial cost of this eradication. The development of new packaging material will make it possible to replace packaging materials produced from petroleum derivatives and to use waste material from the disposal of invasive plants and antibacterial glass from recycled materials. The developed material is compostable, and thus represents a lower burden on the environment than packaging materials used so far. During the solution of the project, the process of incorporating plant fibers into the polymer matrix was successfully mastered. Packaging materials of a new type, aimed at their use in the food industry, were prepared from the thus obtained composite. In cooperation with Tomáš Baťa University in Zlín, a procedure for composting of these packaging materials was also developed. The research was carried out within the European project M-Era.Net "Vegetal fibers-reinforced PLA antimicrobial

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