

## BIODEGRADATION IN SOIL EFFECTS ON PLA/SISAL AND PHBV/SISAL BIOCOMPOSITES

J.D. Badia<sup>a,b,\*</sup>, E. Strömberg<sup>c</sup>, T.Kittikorn<sup>c</sup>, O. Gil-Castell<sup>a</sup>, M.Ek<sup>c</sup>,  
A. Ribes-Greus<sup>a</sup>, S. Karlsson<sup>c</sup>

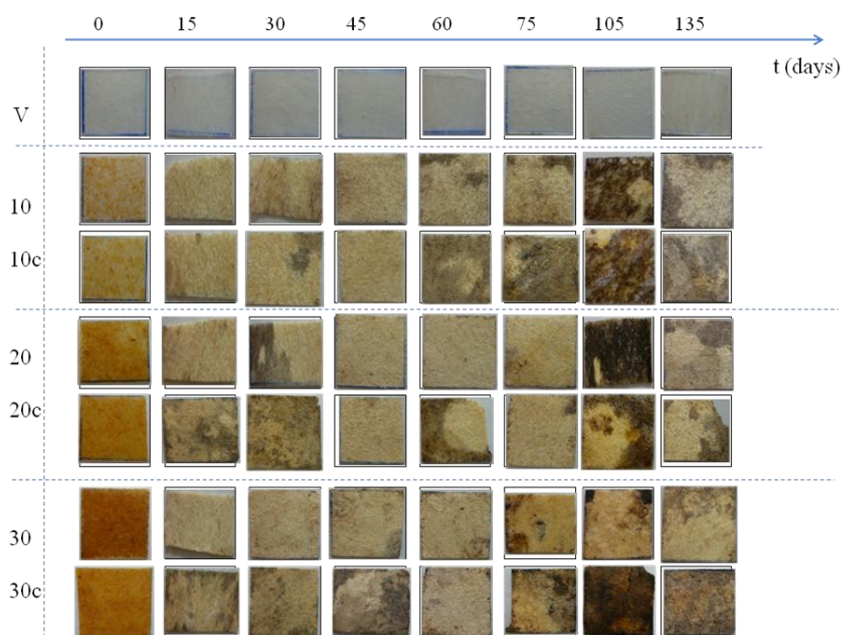
<sup>a</sup>Instituto de Tecnología de Materiales. Universitat Politècnica de València, Camí ed  
Vera s/n, 46022 València, Spain

<sup>b</sup> Departament d' Enginyeria Química, Escola Tècnica Superior d' Enginyeria,  
Universitat de València, Avinguda de la Universitat s/n 46100 Burjassot. València,  
Spain

<sup>c</sup> School of Chemical Science and Engineering, Fibre and Polymer Technology, KTH –  
Royal Institute of Technology, Teknikringen 56-58, SE-10044 Stockholm, Sweden

\*Presenting author: J. D. Badia, [jdbadia@itm.upv.es](mailto:jdbadia@itm.upv.es), +34963877000-78451

The use of bio-based composites like lignocellulosic fibres/polymer composites as an alternative materials are continuously increasing in several applications such as automobile manufacturing, packaging, construction or household and agricultural equipments. In order to warranty the durability on green biocomposites based on polymer matrixes like poly(hydroxy butyrate-co-valerate) (PHBV) and poly(lactide) (PLA), the previous knowledge about the influence of the ambient agents on their macromolecular properties is necessary. In this sense, biodegradation in soil normalised experiments are useful. In this work, two commercial PHBV and PLA were reinforced with sisal fibres at 10 %, 20% and 30% of weight, with the aid of maleic anhydride as coupling agent. Then, the samples were submitted to a normalised burial in soil test during 4 months, sampling different specimens along the burial in soil, as shown in the figure, for the case of PLA/sisal biocomposites.



In this study, the influence of the amount of sisal fiber and the effect of the coupling agent on the impact of the biodegradation in soil on the materials, in terms of the variation of the physico-chemical properties of the biocomposites.