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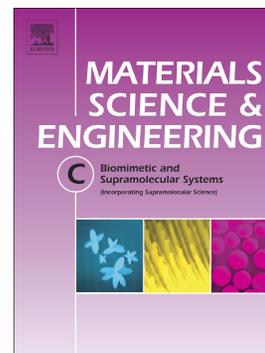
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Modulation of the interface between polyester and spent coffee grounds in polysaccharide membranes: preparation, cell proliferation, antioxidant activity and tyrosinase activity

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ABSTRACT

The structural, antioxidant and cytocompatibility properties of membranes prepared from polyhydroxyalkanoate (PHA) and spent coffee ground (SCG) blends (PHA/SCG) were studied. Acrylic acid-grafted PHA (PHA-g-AA) was used to enhance the desirable characteristics of these membranes, which had better tensile properties than the corresponding PHA/SCG membranes. The water resistance of the PHA-g-AA/SCG membranes was greater than that of the PHA/SCG membranes, and a cytocompatibility evaluation with mouse normal tail fibroblasts (FBs) indicated that both materials were nontoxic. Cell cycle assays of FBs on PHA/SCG and PHA-g-AA/SCG membrane samples were not affected by the DNA content related to damage. Moreover, SCG enhanced the saccharide and polyphenol contents, and antioxidant properties, of the PHA-g-AA/SCG and PHA/SCG membranes. Therefore, we analysed the effects of these compounds' membranes on melanogenesis in B16-F10 melanoma cells. The results demonstrated that PHA/SCG and PHA-g-AA/SCG membranes reduced cellular tyrosinase activities *in vitro*.

Keywords: polyhydroxyalkanoate; spent coffee grounds; tyrosinase activities; cytocompatibility; antioxidant properties.

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