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Do the different species of fungi impact on mycocomposites compression behaviour?

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Mycelium-based composites result from the growth of filamentous fungi on organic materials such as agricultural waste streams, like sugarcane bagasse, sawdust, coffee husks, coconut mesocarp and cotton. The morphology, density, tensile, flexural and compression strength of mycocomposites change according to the type of substrate, fungal species and processing technique. The objective of this study was to evaluate the mechanical behaviour in compression of different mycelium-based materials changing the fungal species. Substrates were formulated with wood sawdust and coconut endocarp, coffee grounds and wheat bran and incubated with isolates of the fungi *Pycnoporus sanguineus*, *Ganoderma applanattum* and *Hexagonia hydnoides*. Pre-myceliated sterile substrates were placed in cylindrical molds and incubated at 25°C for 7 days. After this period, the composites obtained were subjected to a temperature of 80 °C for 12 hours to stop fungi further development. Mechanical tests showed the relationship between the fungi and the compressive resistance (10% strain) of resulting composites, according to ASTM D1621. The analyzes indicated that the use of *Pycnoporus sanguineus* fungus provides a composite with greater resistance to compression, which suggests the application of this mycocomposite in packaging, since the primary requirement of such use is to protect the content against damage.

Keyword: mechanical properties; mycelium; sustainability.

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