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Keeping beetles alive in transport with wood-flour media

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Allan Gonzalez¹, Jiri Hulcr¹

¹University of Florida

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Abstract

This protocol describes how to safely transport bark and ambrosia beetles.

This protocol is part of the Bark Beetle Mycobiome (BBM) Research Coordination Network. For more information on the BBM international network: Hulcr J, Barnes I, De Beer ZW, Duong TA, Gazis R, Johnson AJ, Jusino MA, Kasson MT, Li Y, Lynch S, Mayers C, Musvuugwa T, Roets F, Selmann KC, Six D, Vanderpool D, & Villari C. 2020. Bark beetle mycobiome: collaboratively defined research priorities on a widespread insect-fungus symbiosis. *Symbiosis* 81: 101–113 <https://doi.org/10.1007/s13199-020-00686-9>.



Beetles often survive comfortably for several days, but sometimes up to several weeks in this wood-flour media.

Ingredients:

- 75 g of wood flour
- 40 g of agar
- 500 mL of sterile water
- 0.35 g of Streptomycin

Instructions:

Mix the wood flour, agar, and water into an autoclave-safe media bottle. Set the autoclave to 121° C for 30 minutes. Once out of the autoclave, swirl the container in a cold water bath until it has cooled to touch (about 55° C). Put the Streptomycin in the media and mix. The media will solidify rapidly so be ready to pour it into plates or tubes once out of the water bath. Scar the media surface (under sterile conditions) when it has solidified to make it more habitable to the beetles. When closed and sterile, the media are usable for for several months.

In the field, after the beetle and the label are added, a critical step is to perforate the vial lid with a pin. Without ventilation, the beetle quickly suffocates. A minute pin hole is sufficient, and when in the middle of the lid, it prevents the beetle from finding it.