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5.05 C Environmental impacts and benefits of wood-based composites

Multiple advanced reuse of agroforest waste
from the cultured mushroom-growing sawdust:
Extractive and lignocellulosic residue utilizations

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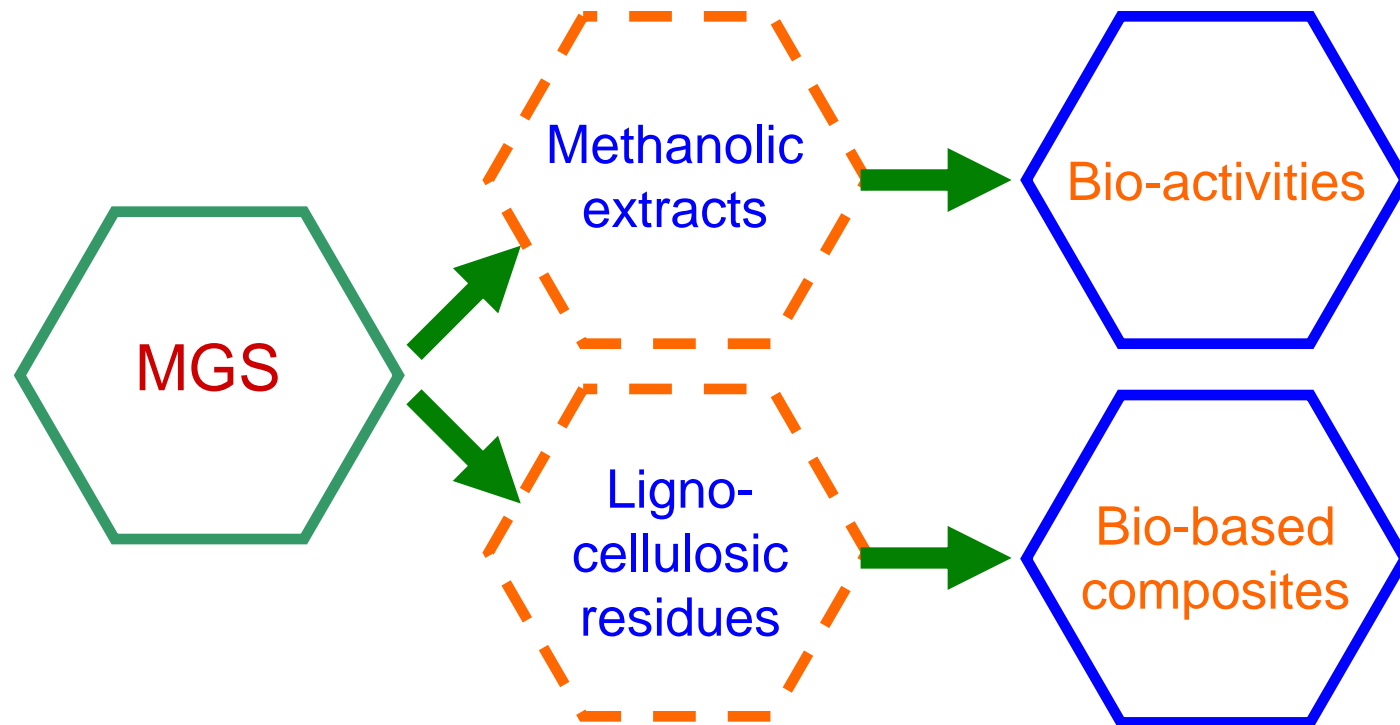


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Target of Research and Methods

To evaluate the potential health benefits and to reuse the lignocellulosic waste from the cultured mushroom-growing sawdust (MGS).



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Results

Methanolic extracts: Bio-activities

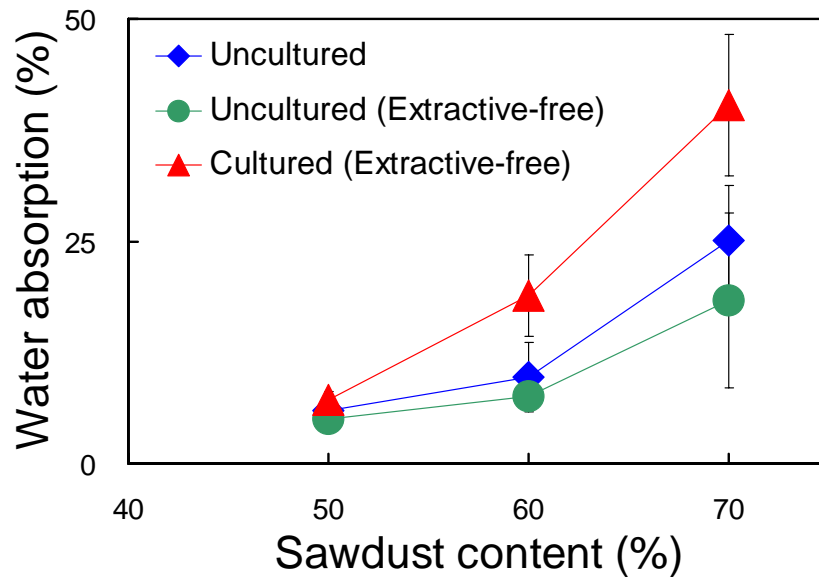
- DPPH radical scavenging activity
- Superoxide radical scavenging activity
- Ferrous-ion chelating activity
- Total phenolic contents

Extracts	IC ₅₀ (μg/mL)			Total phenolics (mg GAE/g)
	DPPH radical	Superoxide radical	Ferrous-ion chelating	
Curde extract	196	141	1026	56
EtOAc fraction	152	116	> 2500	65
BuOH fraction	212	182	> 2500	58
Water fraction	347	261	1366	46



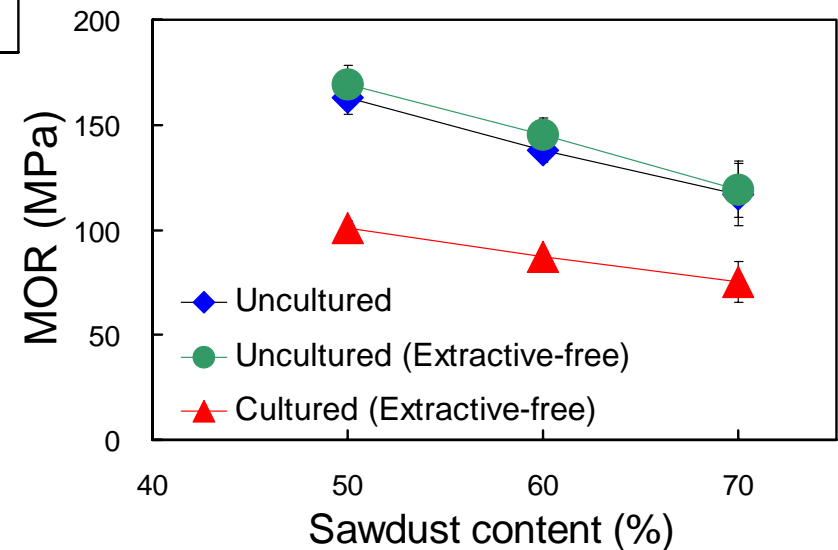
Results

Lignocellulosic residues: Bio-based composites



- Water absorption
- Thickness swelling

- Modulus of rupture
- Modulus of elasticity



Conclusions

- **Methanolic extracts**
 - Significant antioxidant activities
 - Potential to prevent diseases caused by overproduction of free radicals
- **Lignocellulosic residues**
 - Outstanding physical and mechanical properties
 - Potential to reuse lignocellulosic waste as raw materials for bio-based composites



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