



Decay resistance and physicochemical properties of wood preservatives based on extractives from *Ocotea acutifolia* leaves

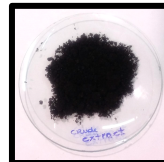
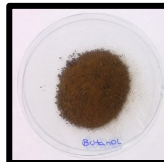


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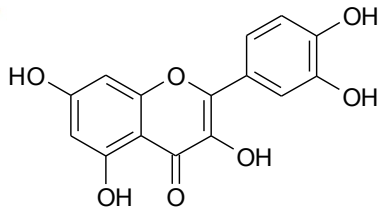


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MOTIVATION



Protection against adverse environmental conditions and pests.

In addition to replace copper components on wood preservatives, studies have been performed to assess the potential of plant extracts to enhance resistance of timber products against biological degradation.



(Xu *et al.* 2013)

In this context, the present report is aimed to evaluate the physicochemical properties and decay resistance of leaves extracts from a native Brazilian tree, *Ocotea acutifolia* Nees (Mez) against wood-rot fungi.



UFSM



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FP1407

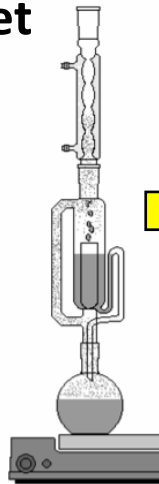
ModWoodLife

PROCEDURE

Extraction by Soxhlet

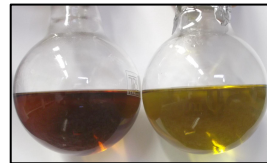


Ethanol ratio 20:1
(solvent to material)

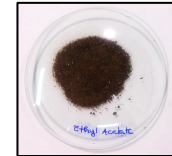


Liquid/liquid partition

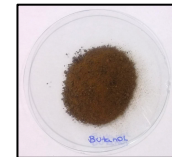
(Egua *et al.* 2014)



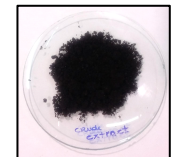
Solvents
removed at 50 °C



Ethyl
acetate fr.



Butanolic
fr.



Crude
extract

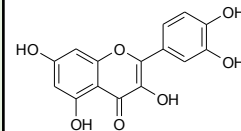
Decay resistance assay

Downy birch laminated
woods impregnated by
extractives (1% and 4% in
ethanol by immersion)
and placed in contact
with fungal agent
T. versicolor.



Physicochemical characterization

Thermogravimetric analysis,
antioxidant capacity,
Flavonoids and total phenolic
contents

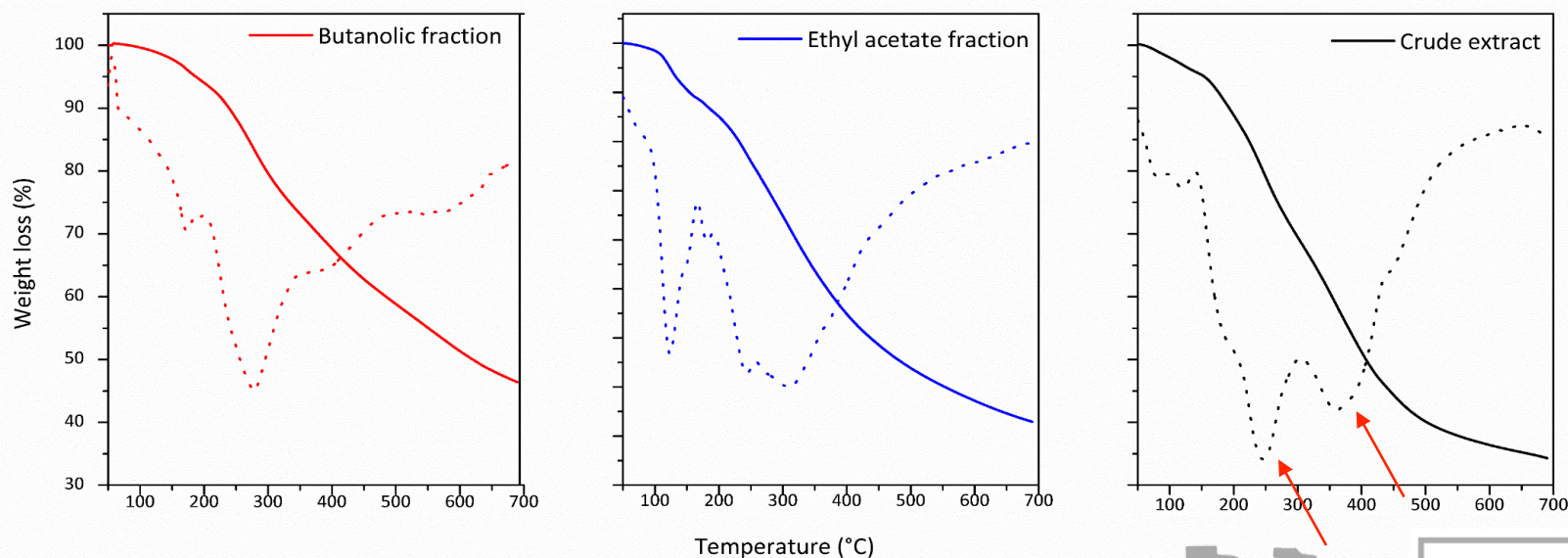


RESULTS

Table 1: Comparison of DPPH assay and polyphenols from *O. acutifolia* leaves extracts.

Sample	IC ₅₀ DPPH scavenging [mg extract/mL]	Flavonoid content [mg QE/g]	Total phenolic content [mg GAE/g]
Crude extract	1.10 ± 0.08 C	83.94 ± 1.98 C	178.75 ± 12.95 C
Butanolic fr.	0.55 ± 0.03 A	112.43 ± 1.87 B	405.09 ± 16.79 A
Ethyl acetate fr.	0.74 ± 0.07 B	178.93 ± 1.03 A	360.04 ± 16.19 B

Figure 1: Thermogravimetric analysis of *O. acutifolia* leaves extracts.



Impurities in the crude extract.

RESULTS

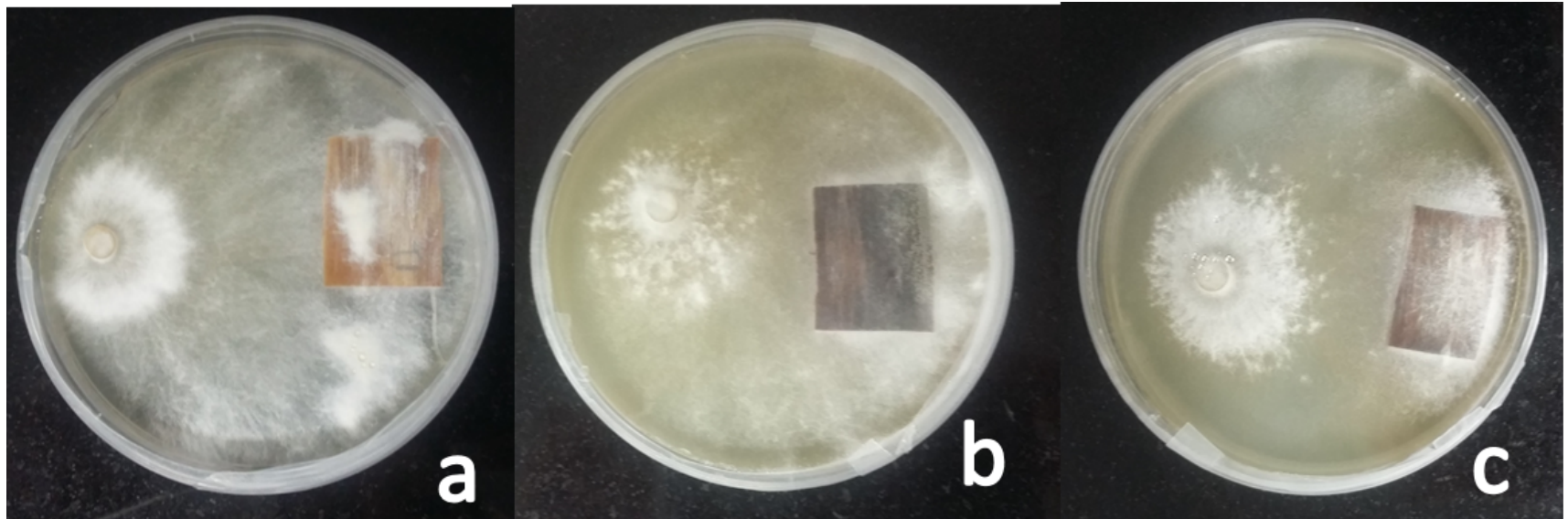


Figure 2: Preliminary results of decay test of extractives from *O. acutifolia* leaves after four weeks.

Control (2a); ethyl acetate at 4 % (2b); crude extract at 4 % (2c).

Control: < 10 % of weight loss

CONCLUSIONS AND PERSPECTIVES

Extractives from *O. acutifolia* leaves contain polyphenols, which have a potential antioxidant activity.

Unfractionated extract (crude extract) seems to contain impurities that may be interfered in the chemical composition determination.

The preliminary results are closely related to the development of antifungal products for wood and wood-based materials.



However, other assays must be conducted under different fungal agents and weathering conditions in order to describe the appropriate application of extractives from *O. acutifolia* leaves.

ACKNOWLEDGMENTS



**THANK YOU FOR YOUR
ATTENTION!**

