Article

Demethylation of Lignin from Rice-Straw Biorefinery: An Integrated Chemical and Biochemical Approach

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Received: 16 October 2025; Revised: 20 December 2025; Accepted: 3 December 2025; Available online: 9 December 2025

Supplementary Materials

Table S1. IC_{50} values of lignin samples before and after demethylation.

Sample of Lignin	IC_{50} Value in ABTS in mg/mL
Extracted lignin (non-demethylated)	11.02 ± 0.12
Lignin treated with HI+DMF	3.072 ± 0.165
Lignin treated with HI+CA	3.334 ± 0.112
Lignin treated through integrated; PP 96->HI+DMF	2.991 ± 0.017
Lignin treated through integrated; PP 96->HI+CA	2.940 ± 0.227
Control flask (no inoculum) 144H	10.101 ± 0.142
Lignin treated with PP 144H	4.881 ± 0.097
Lignin treated with PF 144H	6.039 ± 0.142
Lignin treated with TV 144H	7.513 ± 0.043
BHT	0.011 ± 0.0003
Gallic acid	0.004 ± 0.0001

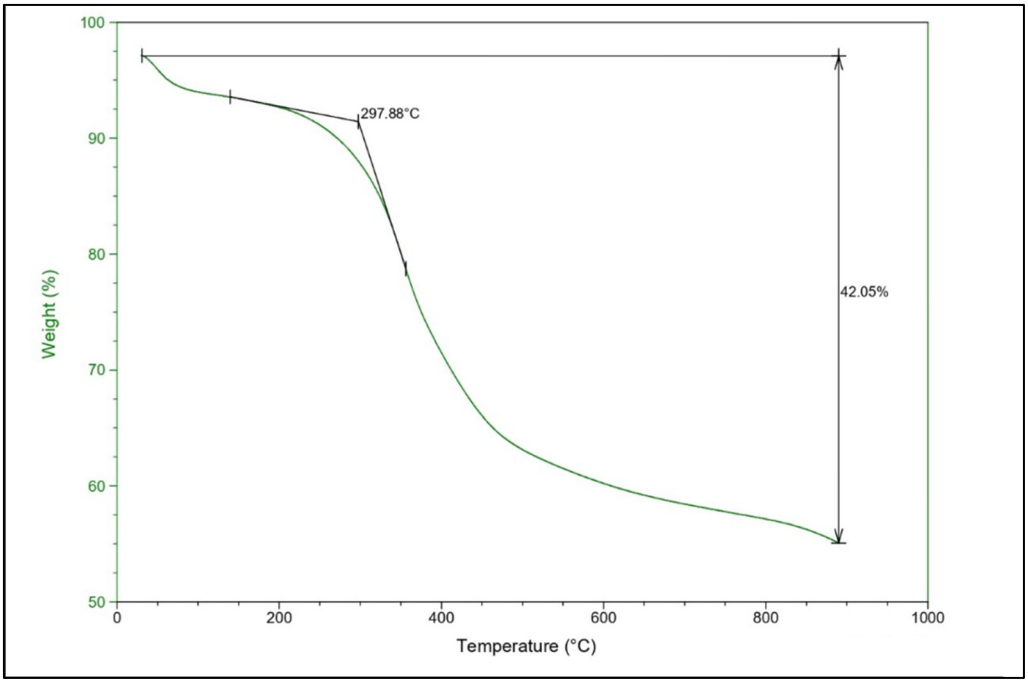
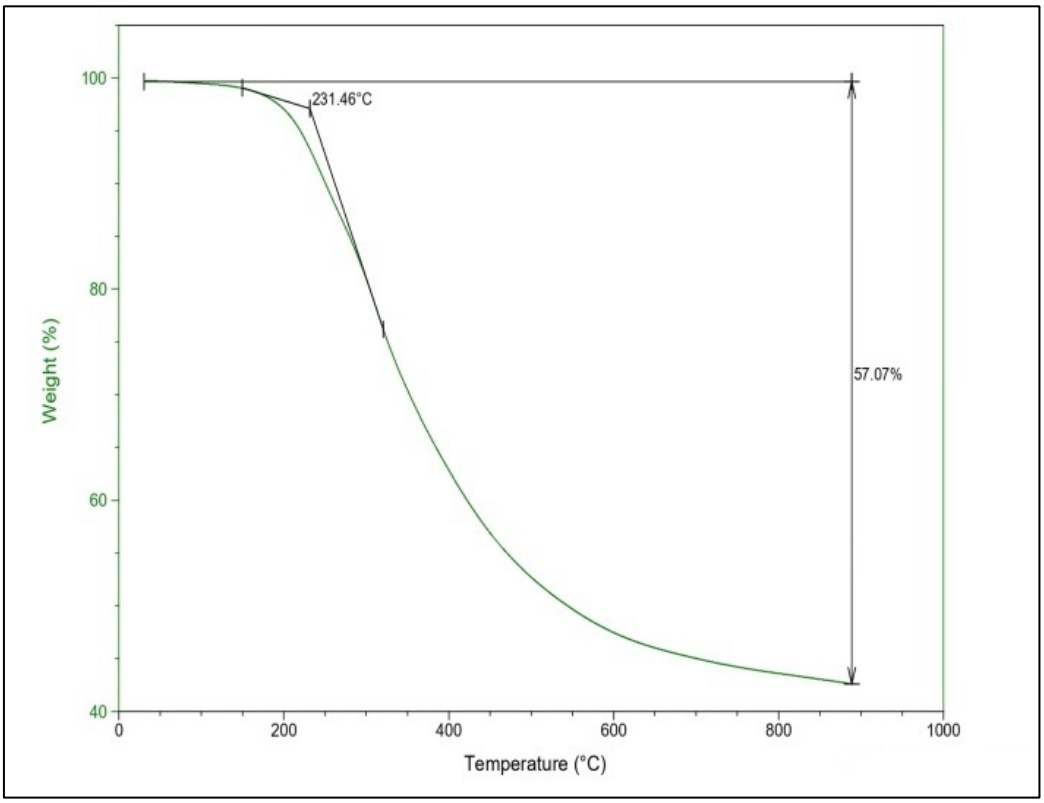
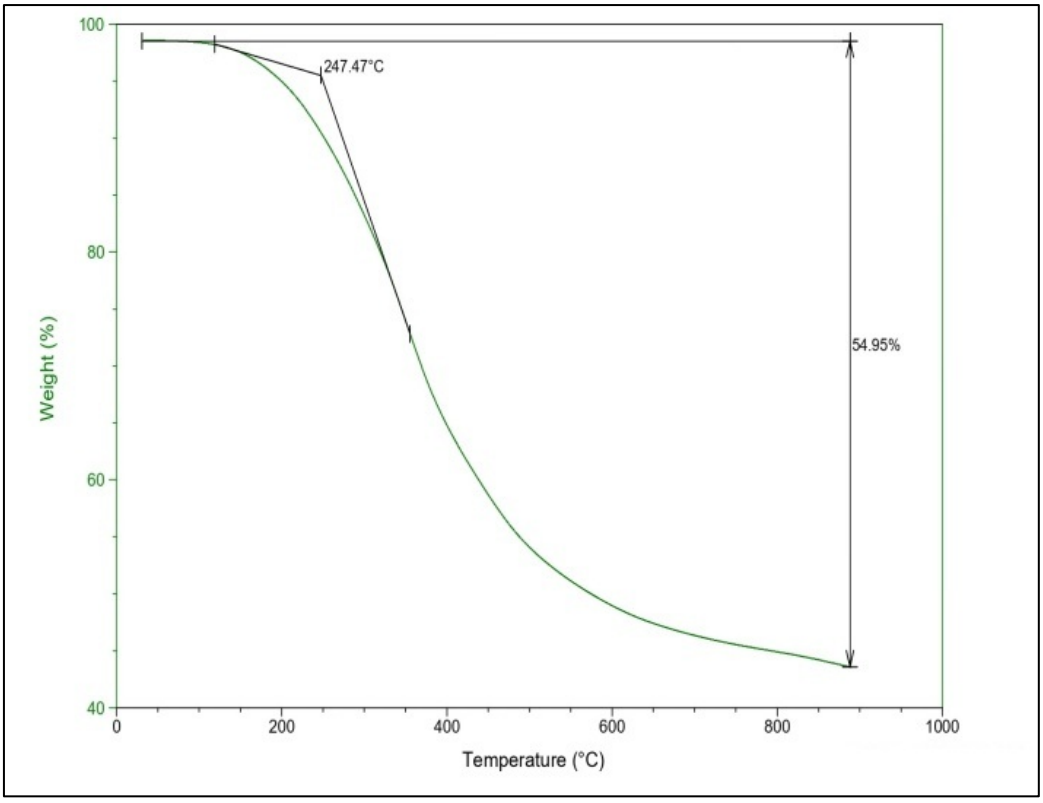


Figure S1. Thermogravimetric graph of purified lignin (non-demethylated).

https://doi.org/10.70322/gct.2025.10023

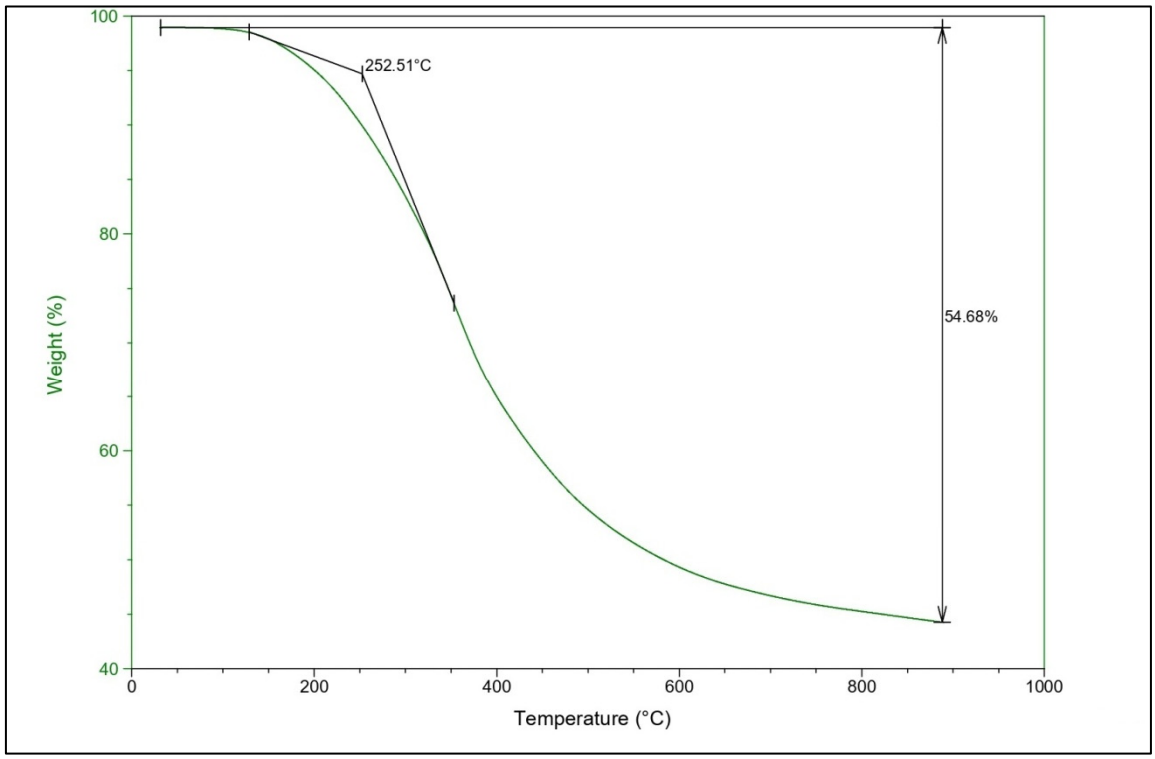


(**a**)

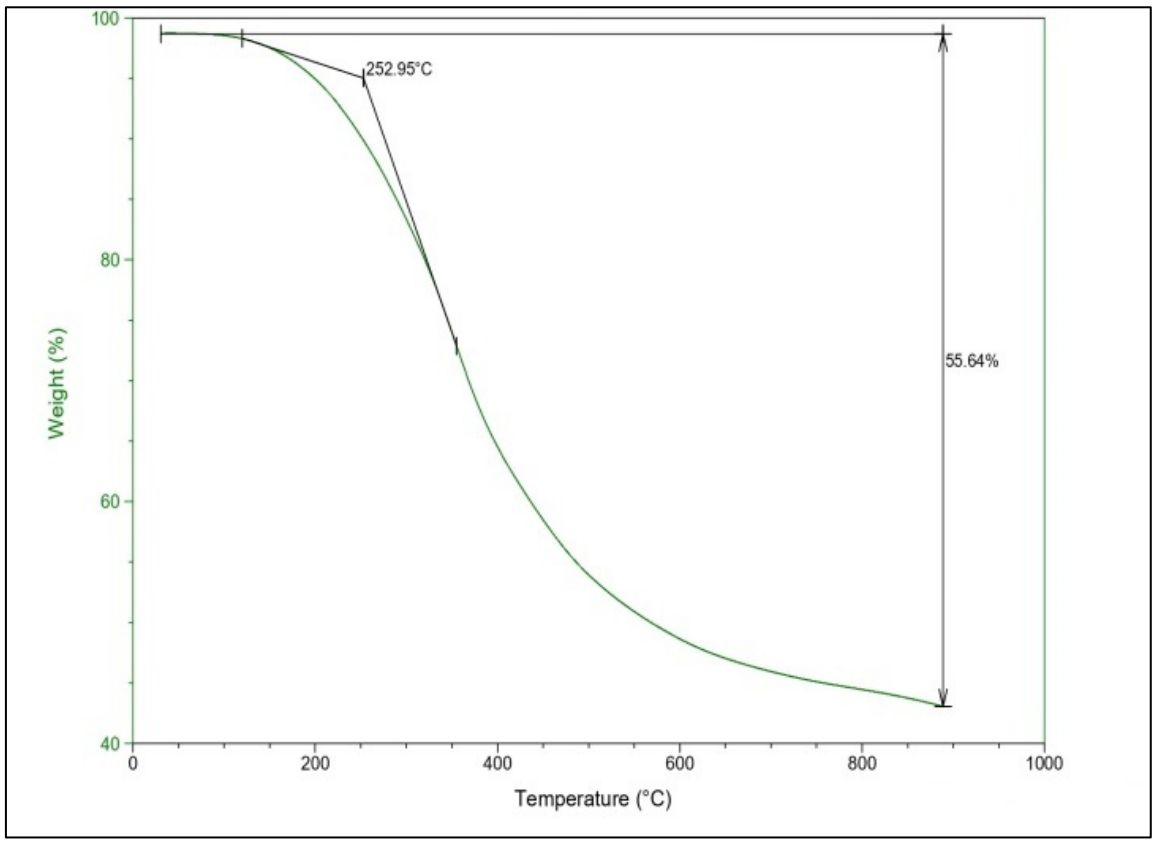


(**b**)

Figure S2. Thermogravimetric graph of chemically demethylated lignin using HI and (**a**) DMF as solvent (**b**) CA as solvent.



(**a**)



(**b**)

Figure S3. Thermogravimetric graph of microbially demethylated with **(a)** *Pseudomonas putida* **(b)** *Pseudomonas fluorescens*.

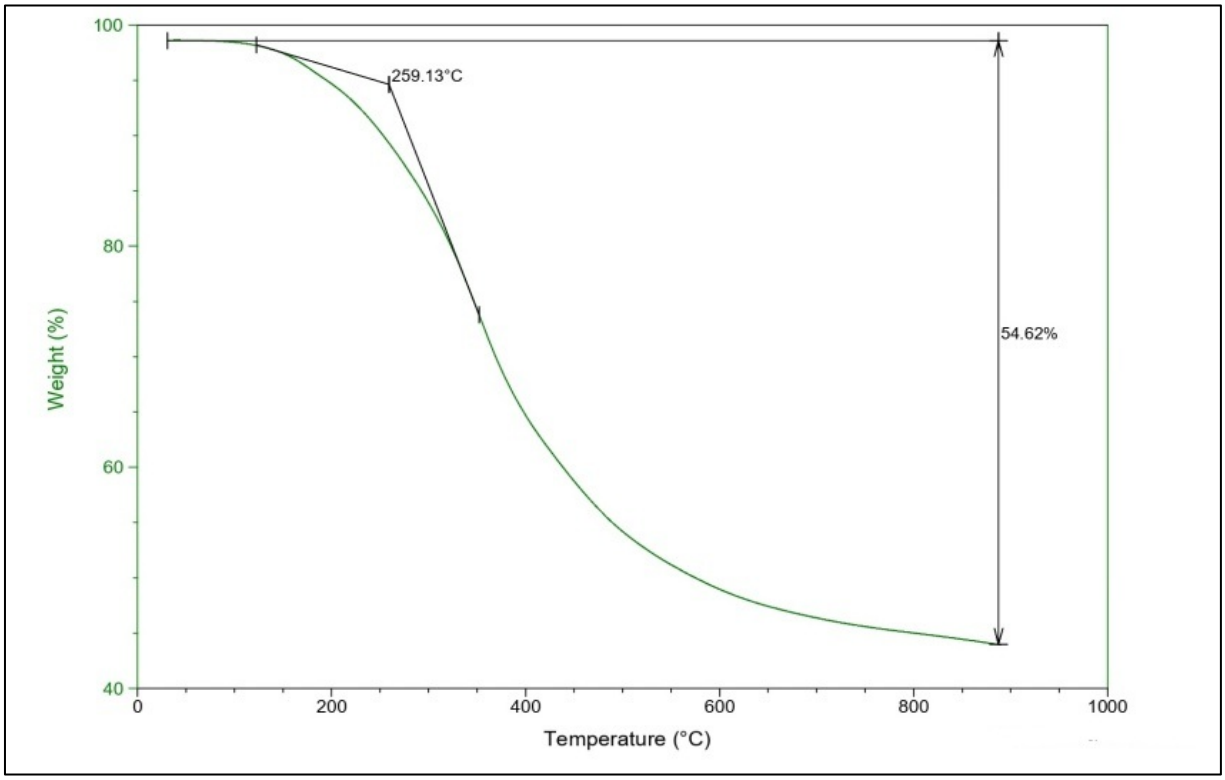
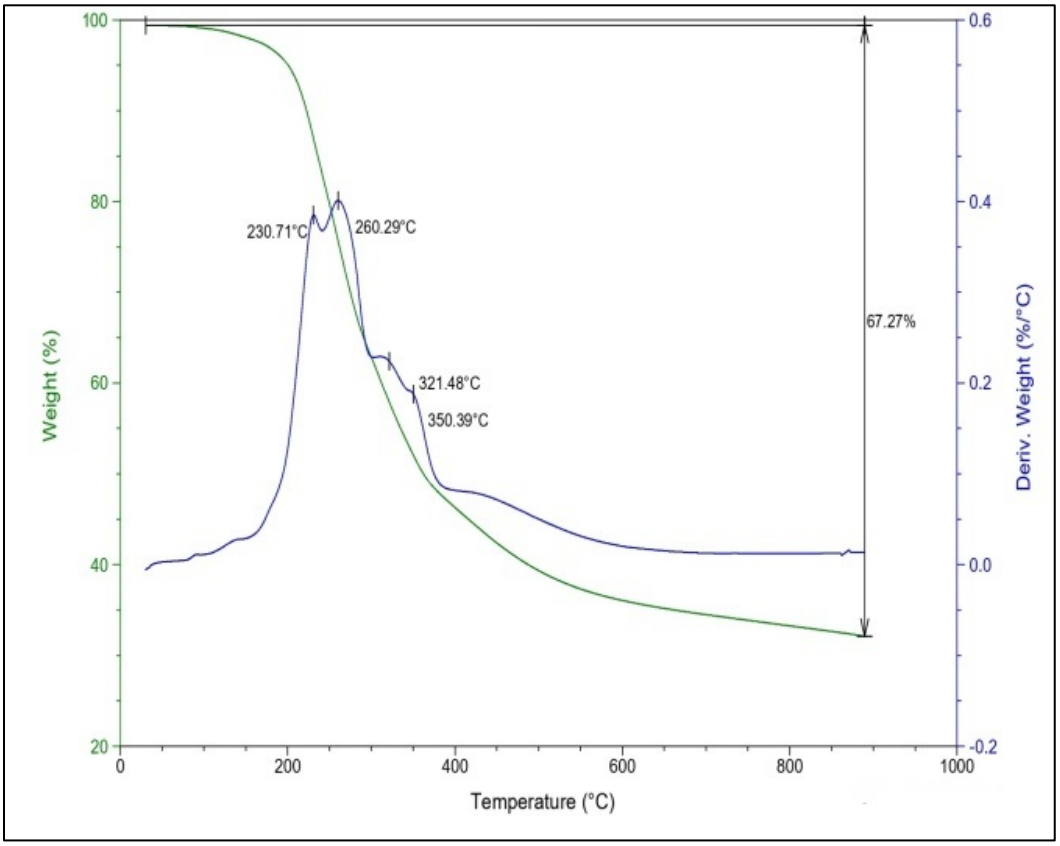
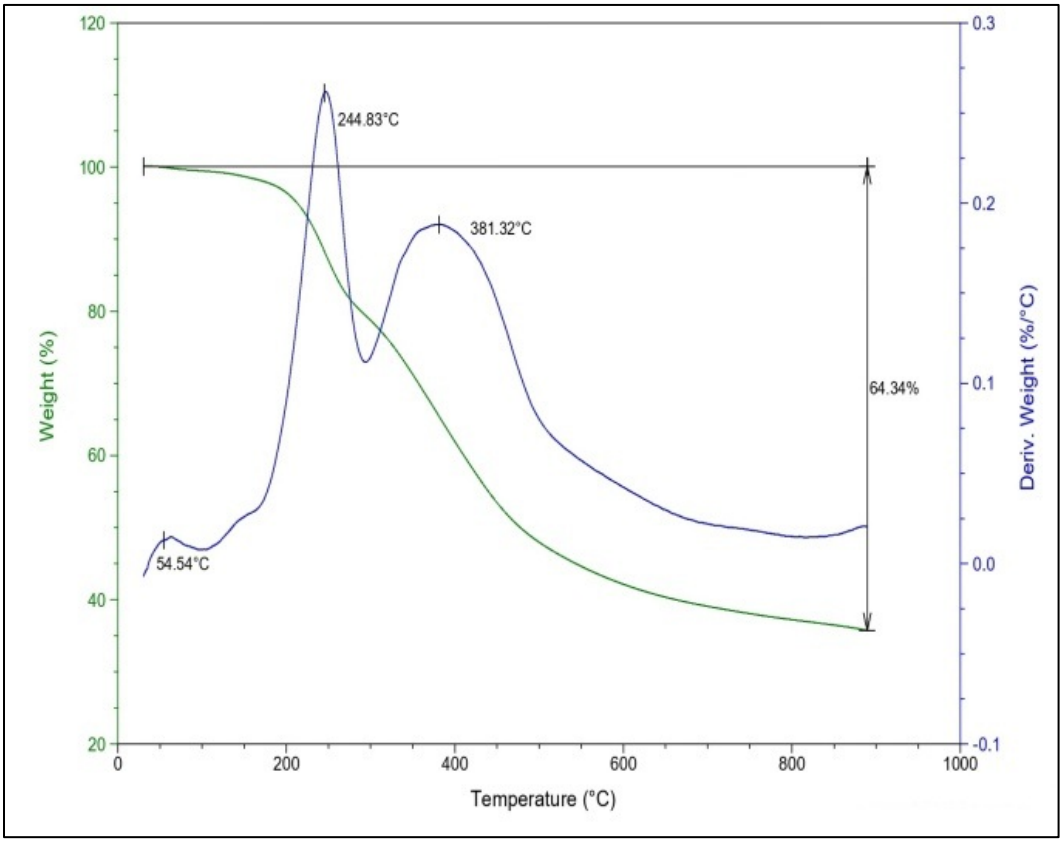


Figure S4. Thermogravimetric graph of microbially demethylated with *Trametes versicolor*.



(**a**)



(**b**)

Figure S5. Thermogravimetric graph of lignin demethylated with the integrated approach, initially with *Pseudomonas putida* followed by HI with (**a**) DMF as solvent (**b**) CA as solvent.