

Supplementary Information

Fully bio-based water-resistant wood coatings derived from tree bark

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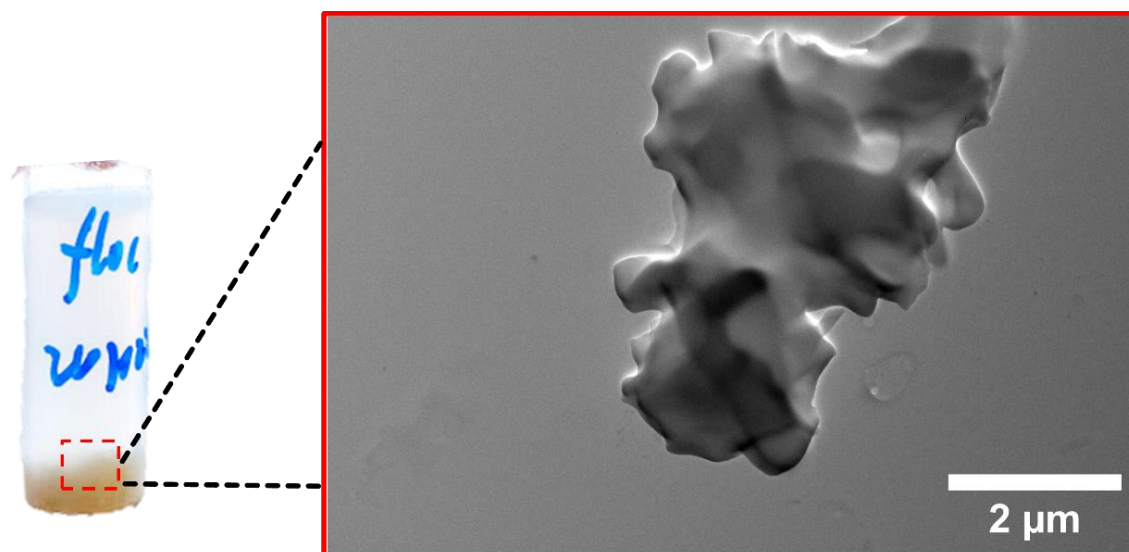


Fig. S1: Digital photograph of pure suberin fatty acids particles water dispersion(left) and the corresponding TEM images of the particles(right), which are aggregating and phase separating from water dispersion.

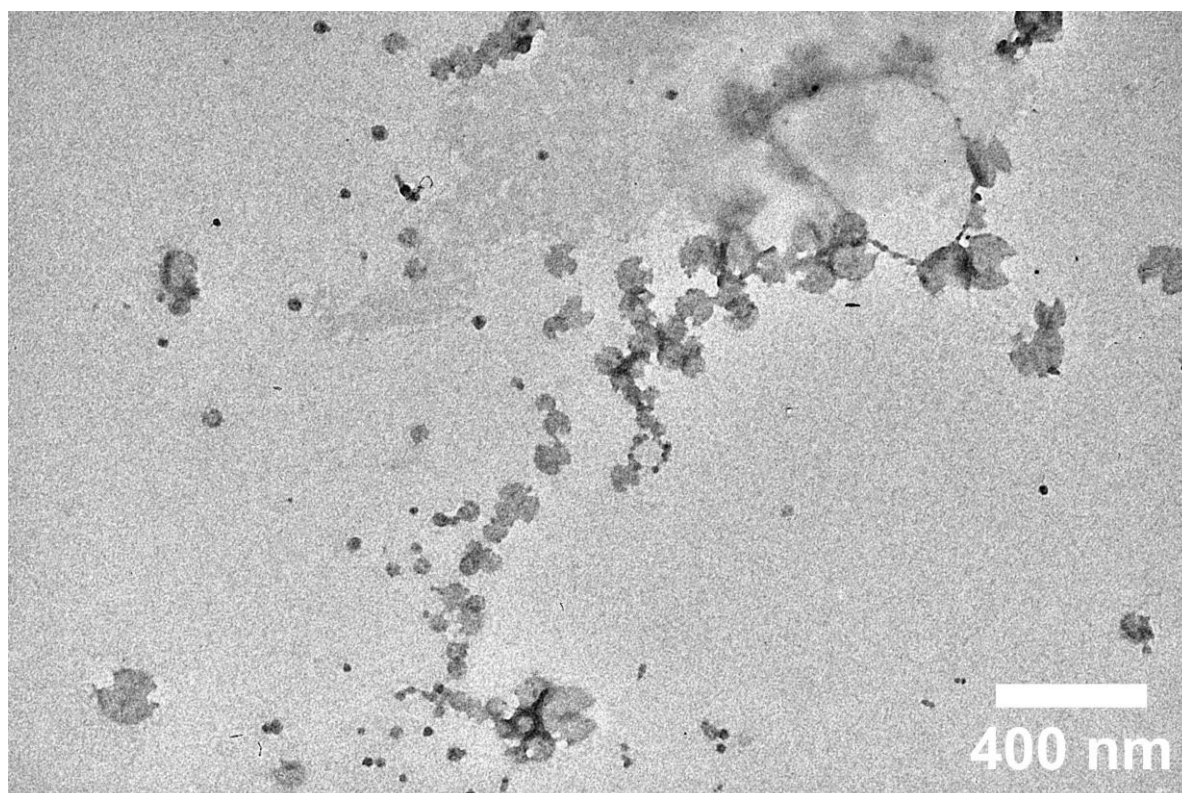


Fig. S2: TEM image of hybrid NPs with 30% polyphenols.

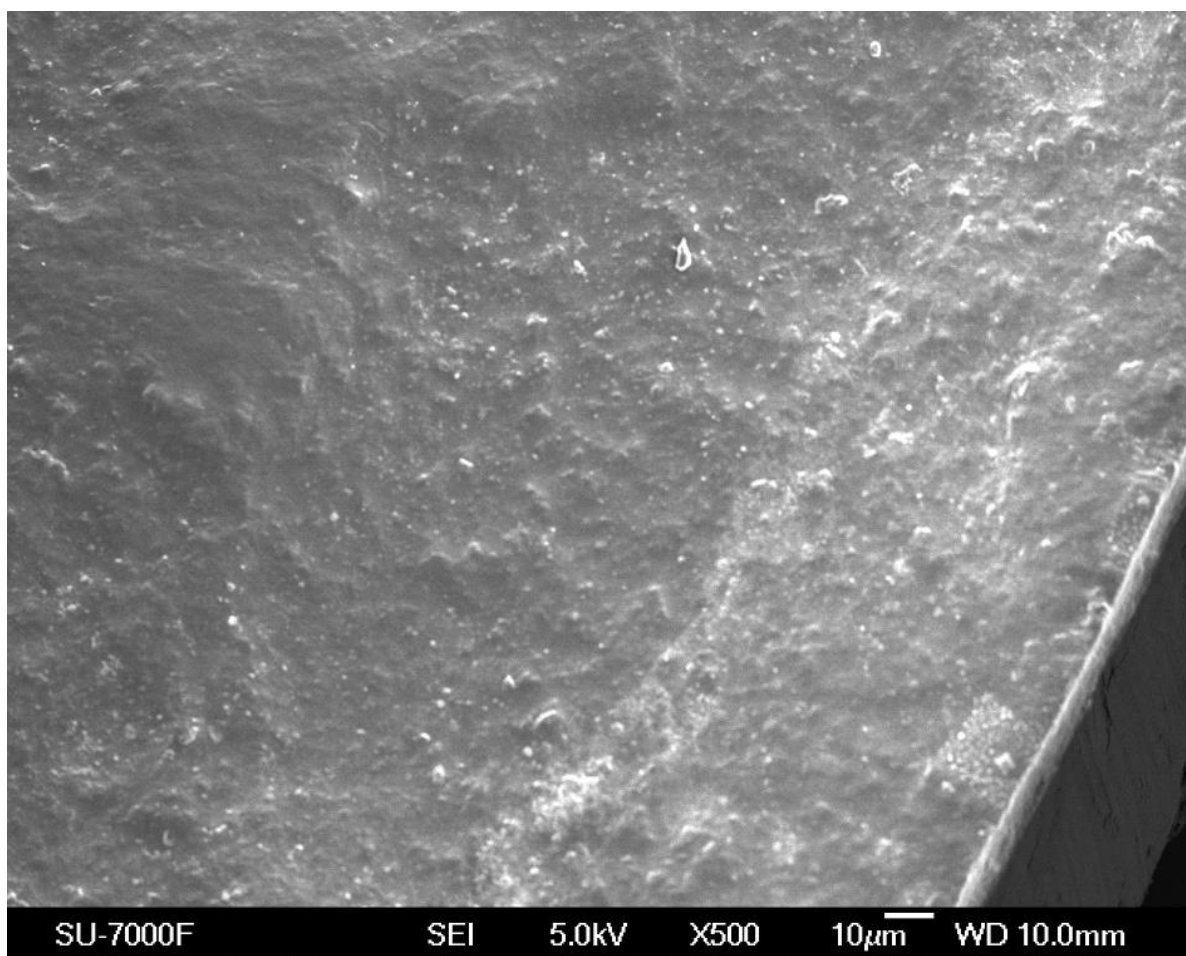


Fig. S3: SEM image of the surface of cured hybrid NPs (30% polyphenol) coating

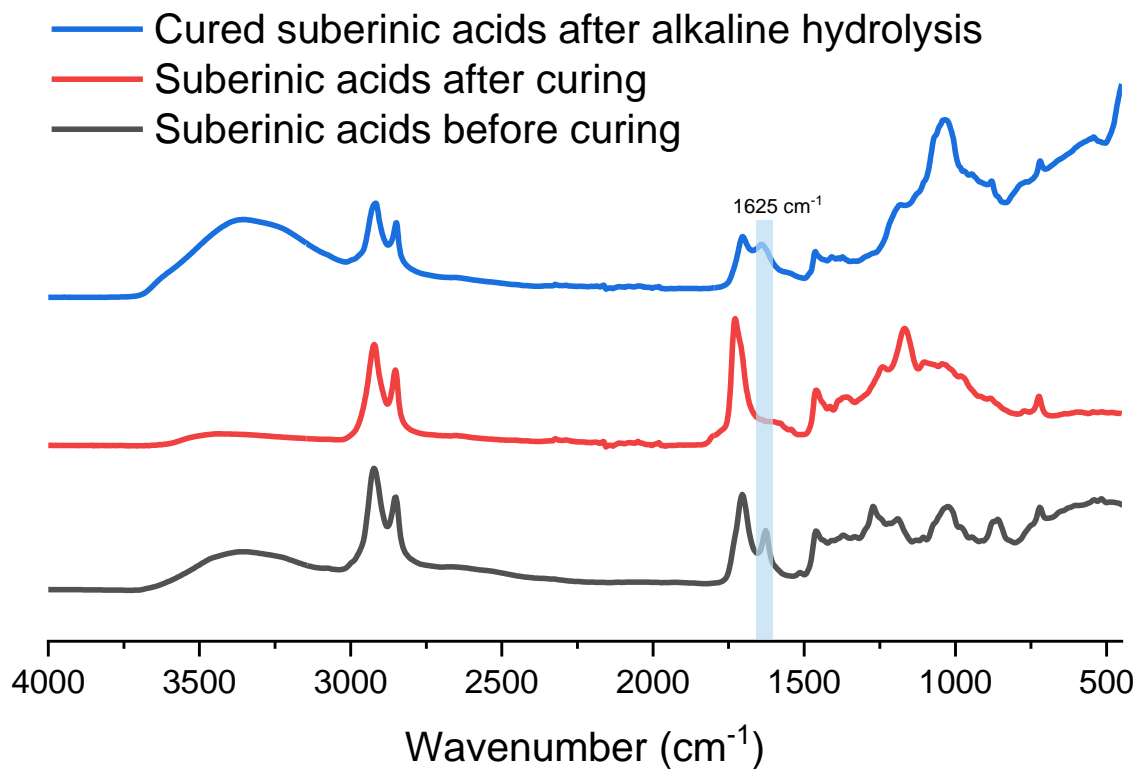


Fig. S4: IR spectrum of suberic acids (SAs) before curing, after curing, and after alkaline hydrolysing cured SAs

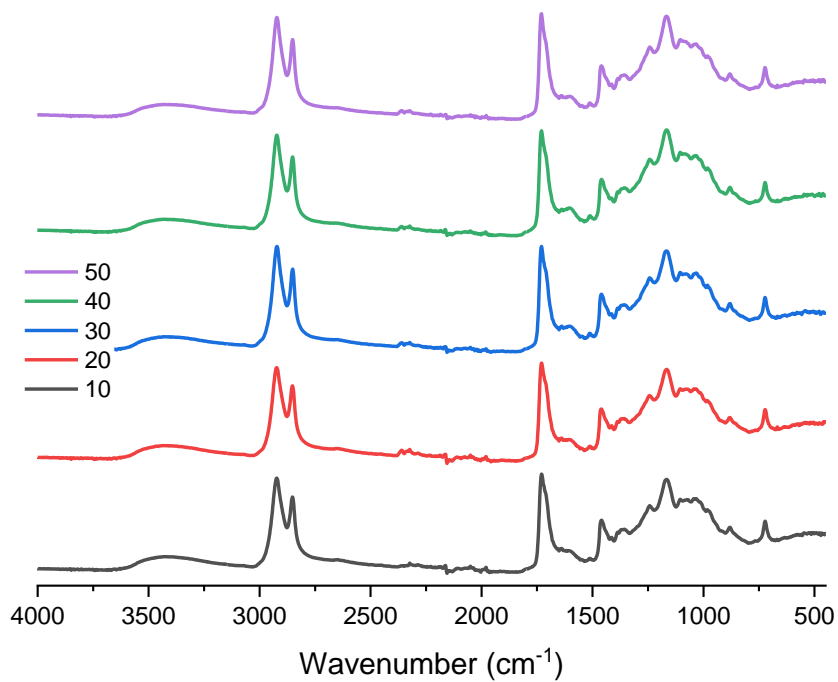


Fig. S5: IR spectrum of cured hybrid NPs with different polyphenol content (10-50%)

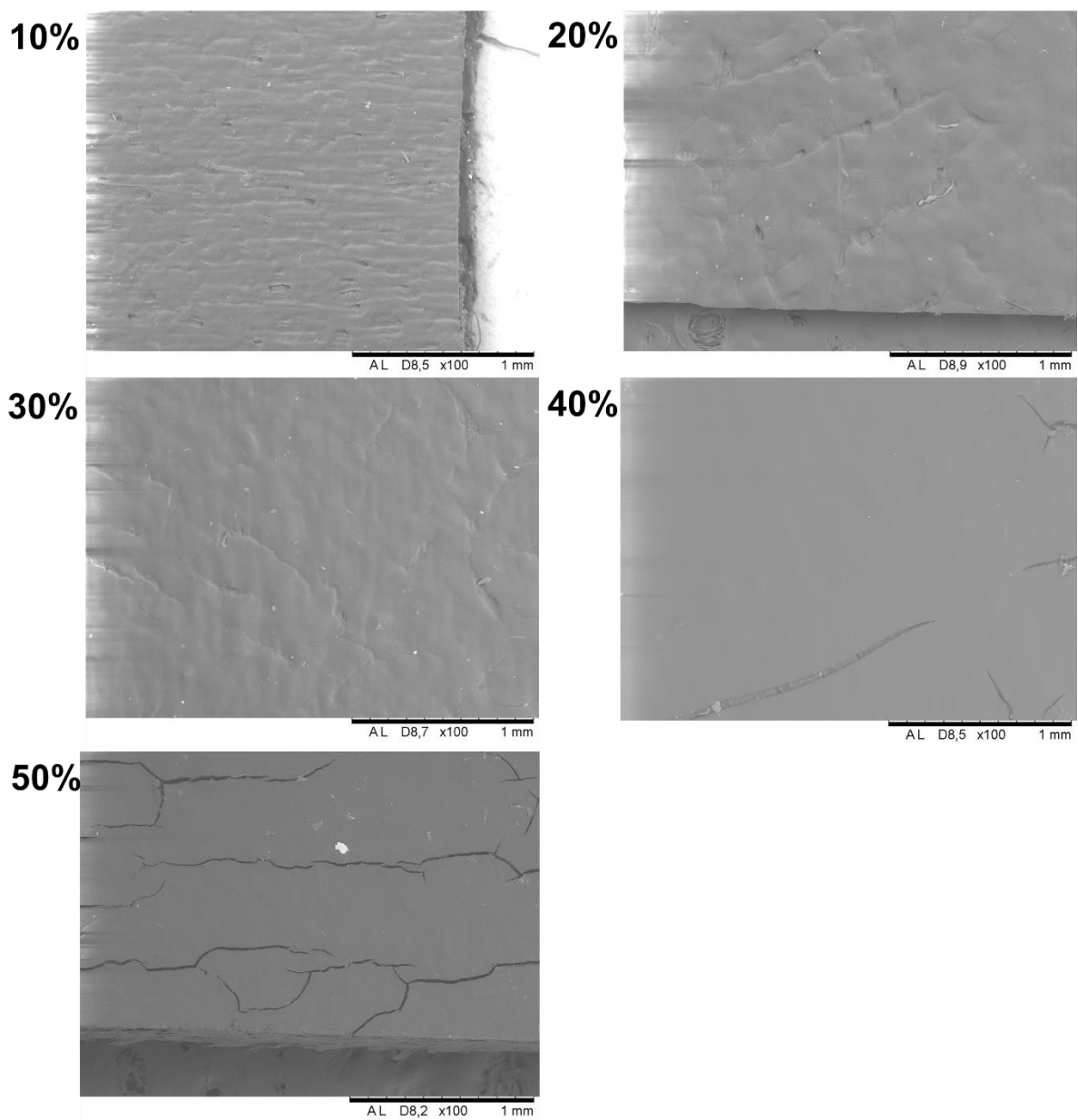


Figure. S6: Surface morphology of the hybrid NPs coating with different polyphenol content (10% to 50%).

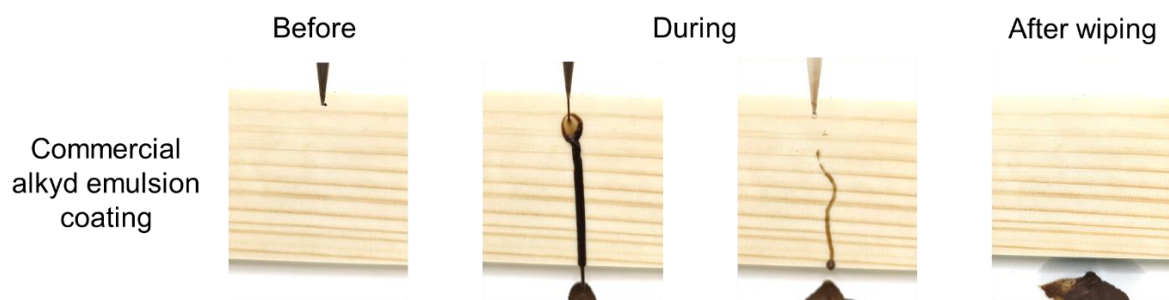


Fig. S7: The stain resistance performance of commercial alkyd emulsion coating.

Table. S1: Bio-based content and water absorption values used for Fig. 7 of the main text.

Label in Fig. 7	Material	Bio-based material % (dry)	Water absorption value (g/m ²)	Ref.
1	Linseed oil	20-40	110	1
2	Alkyd emulsion	0	240	1
3	Waterborne polyurethane	0	640	2
4	Swedish red paint	44	1034	1
5	Acrylic	40	1100	3
6	Bio-based polyurethane	45	825	4
7	Bio-based acrylic	39	720	5
8	Tung oil	100	700	6
9	Linseed oil	100	1250	6

Supplementary References

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