Electronic Supplementary information

A natural polymer with desirable self-healing and recyclable, antibacterial, and adhesive properties based on turpentine monomer

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Results and discussions

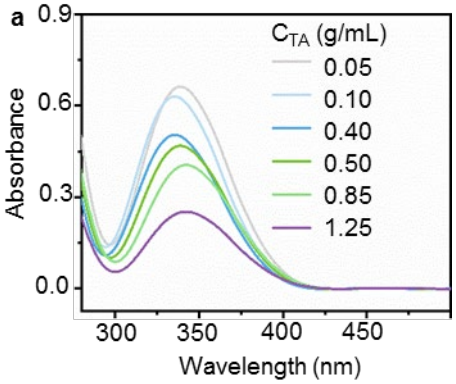

Fig. S1. The UV spectrum of the TA solution with different concentration

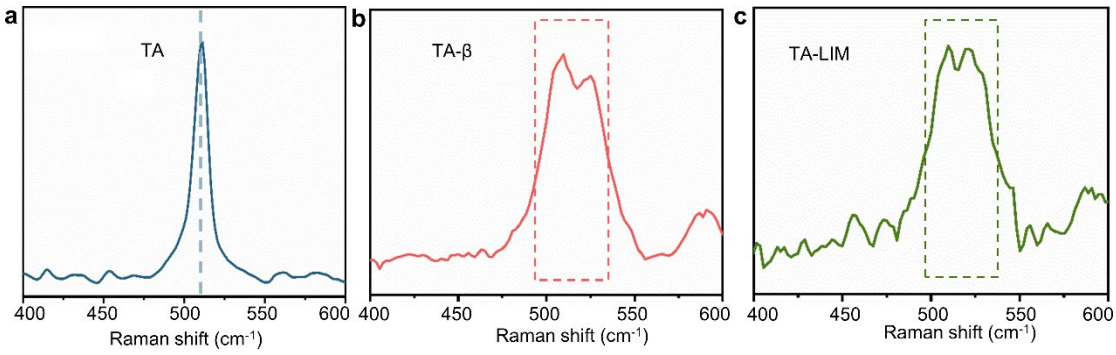

Fig. S2. The Raman spectrum of the (a) TA, (b) TA-β, and (c) TA-LIM.

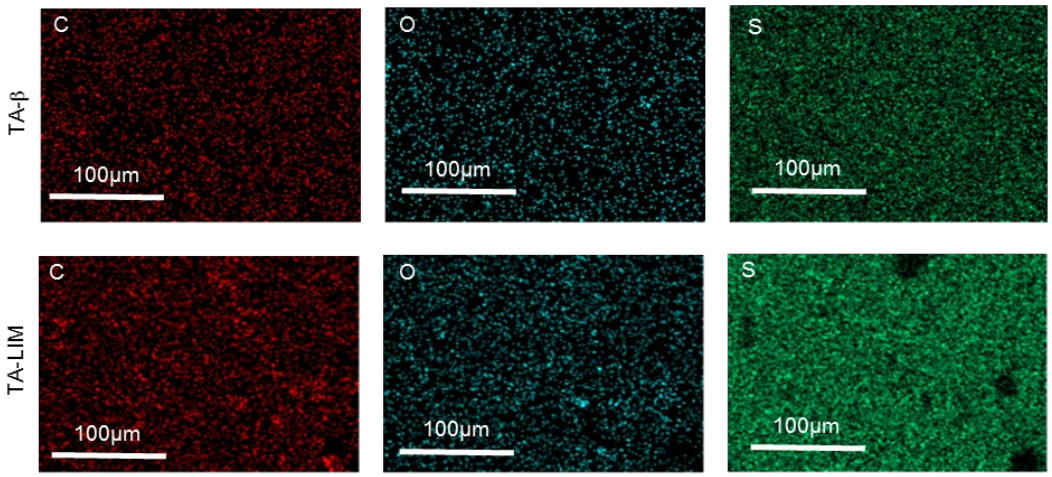

Fig. S3. The EDS mappings of TA-β and TA-LIM.

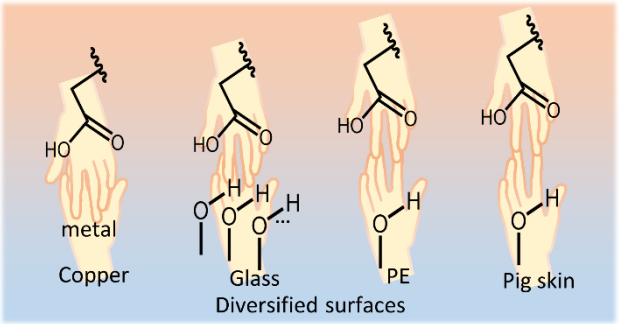

Fig. S4. The illustration of the adhesive property of the TA-LIM towards different substrates.

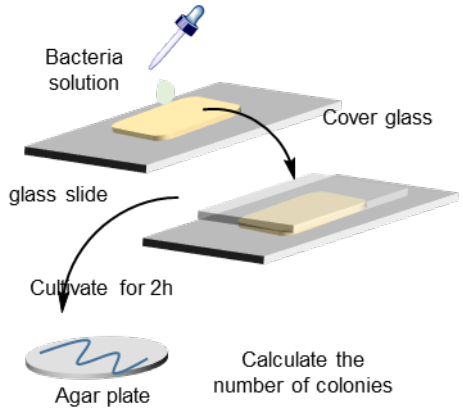

Fig. S5. The illustration of the plate count method

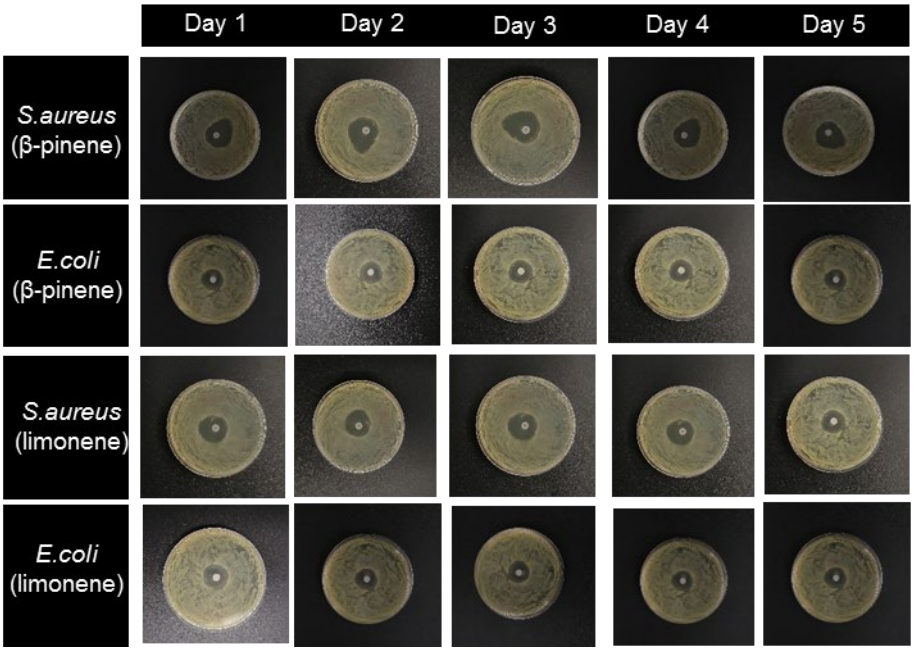

Fig. S6. Photos of the diameter of the inhibition zone which treat by the β-pinene and limonene towards *E.coli* and

S.aureus

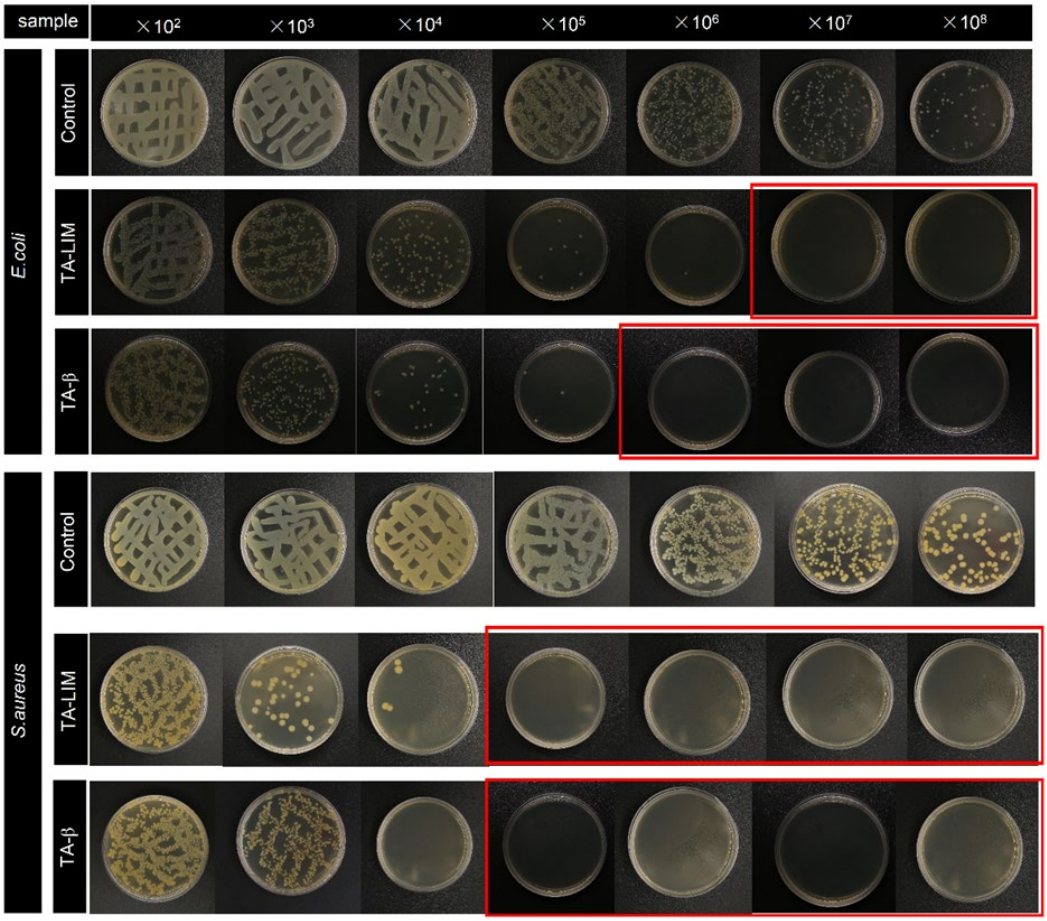

Fig. S7. Photos of the *E.coli* and *S.aureus* which treat by TA-β and TA-LIM

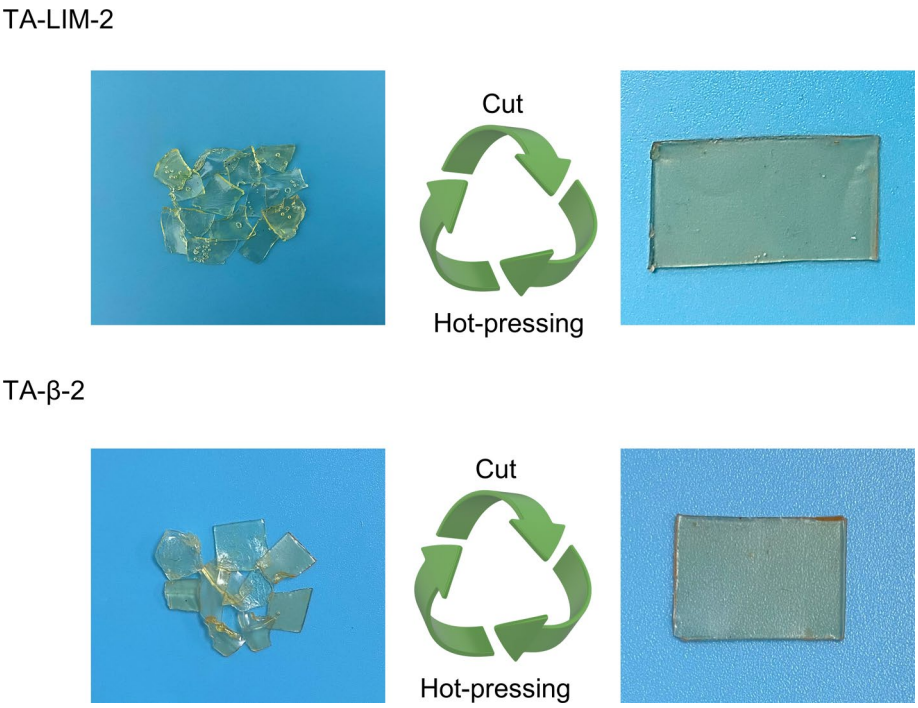

Fig. S8. Recycling of TA-LIM-2 and TA-β-2 via hot-pressing.

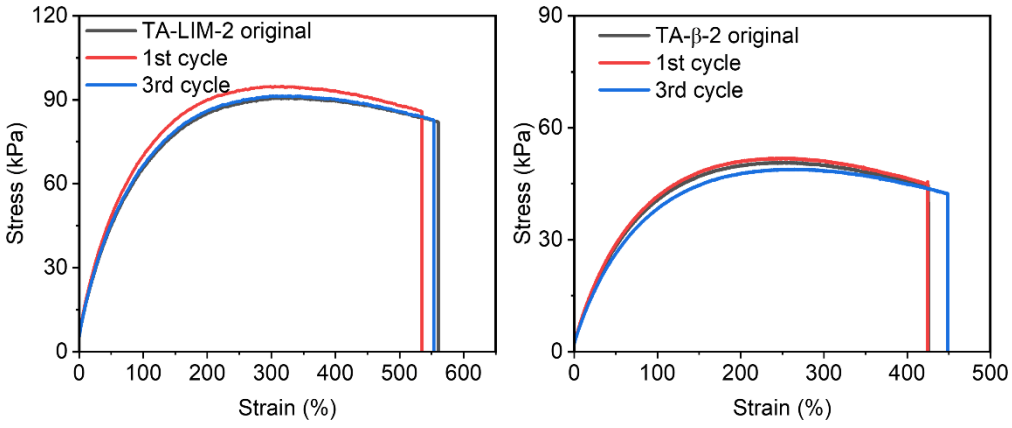

Fig. S9. The stress-stain curves of the TA-LIM-2 and TA-β-2 after three recycling.

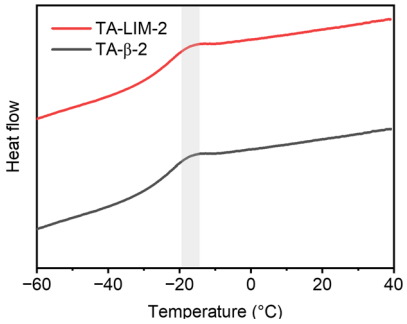

Fig. S10. DSC curves of the TA-LIM-2 and TA-β-2.

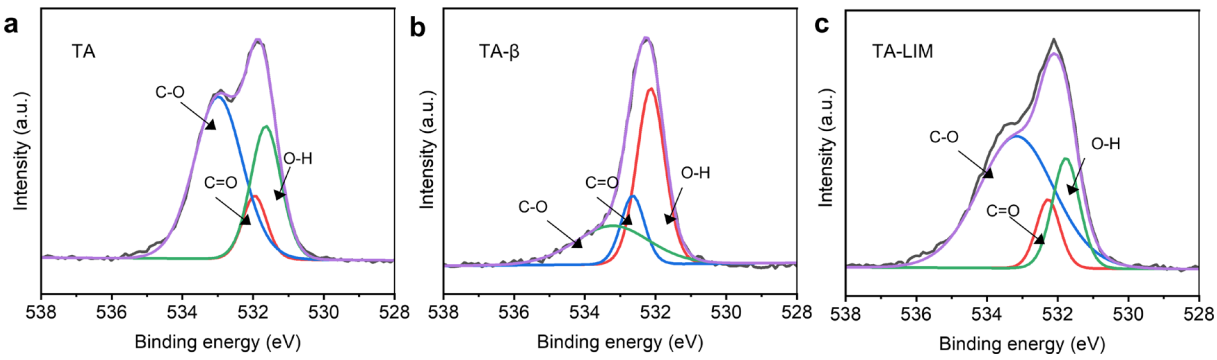

Fig. S11. The Raman spectrum of the (a) TA, (b) TA-β, and (c) TA-LIM.

Table S1. The compositions of TA-LIM and TA-β

sample	TA (g)	Ethanol (mL)	β-pinene (g)	Limonene (g)
TA-β-1	2.00	2.00	0.10	/
TA-β-2	2.00	2.00	0.15	/
TA-β-3	2.00	2.00	0.20	/
TA-LIM-1	2.00	2.00	/	0.07
TA-LIM-2	2.00	2.00	/	0.15
TA-LIM-3	2.00	2.00	/	0.25

Table S2. LB medium

sample	weight(g/L)
TRY	10
yeast	5
NaCl	5

Table S3. LB-agar medium

sample	weight(g/L)
TRY	10
yeast	5
NaCl	5
agar	2

Table S4. MIC and MBC of the β-pinene and limonene towards different bacteria (Unit: mg/mL)

Sample	*E.coli*		*S.aureus*	
	MIC	MBC	MIC	MBC
β-pinene	2.5	10	1.25	2.5
limonene	5	20	1.25	5