Electronic Supplementary Material (ESI) for Green Chemistry.

Sustainable Waterborne Vanillin-Eugenol-Acrylate Miniemulsion with Suitable Antibacterial Properties as Substitutes for Styrene-Acrylate Emulsion

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List of supplementary tables and figures

After extraction for 24 h with boiling ethyl acetate, the remaining insoluble fractions were considered to be incorporated into the insoluble crosslinked network structure. The results in Table S1 showed that the P(DV-BA-DE) system exhibited a higher curing degree, which insoluble weight percent was 96.8%. In sharp contrast, the insoluble weight percent of P(St-BA-DAAM) system was 28.3%, which was significantly lower than P(DV-BA-DE) system.

Table S1. Insoluble weight percent for P(DV-BA-DE) and P(St-BA-DAAM) system

Polymer system	Insoluble weight percent (wt%)
P(DV-BA-DE)	96.8±0.3
P(St-BA-DAAM)	28.3±0.1

Table S2. Softness of the cured P(DV-BA-DE) latex film, uncoated leather and P(DV-BA-DE) miniemulsion coated leather

Sample	The cured P(DV-BA-DE) latex film	Uncoated leather	The P(DV-BA-DE) miniemulsion coated leather
Softness (mm)	7.3±0.2	7.6±0.5	7.8±0.6

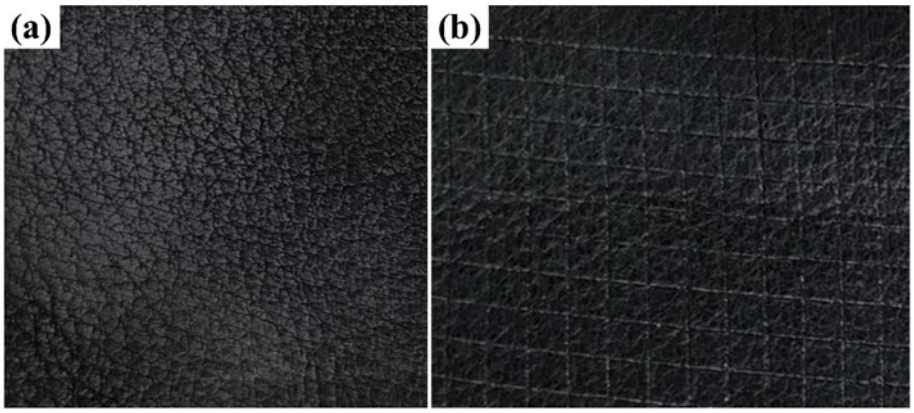

Fig. S1 The scratch-resistance of the P(DV-BA-DE) miniemulsion coated leather: (a) before test, (b) after test.

The aldehyde-free aromatic rigid monomer styrene St was used to replace DV to prepare P(St-BA-DE). The schematic diagram of molecular structure of P(DV-BA-DE) and P(St-BA-DE) were shown in Fig S2.

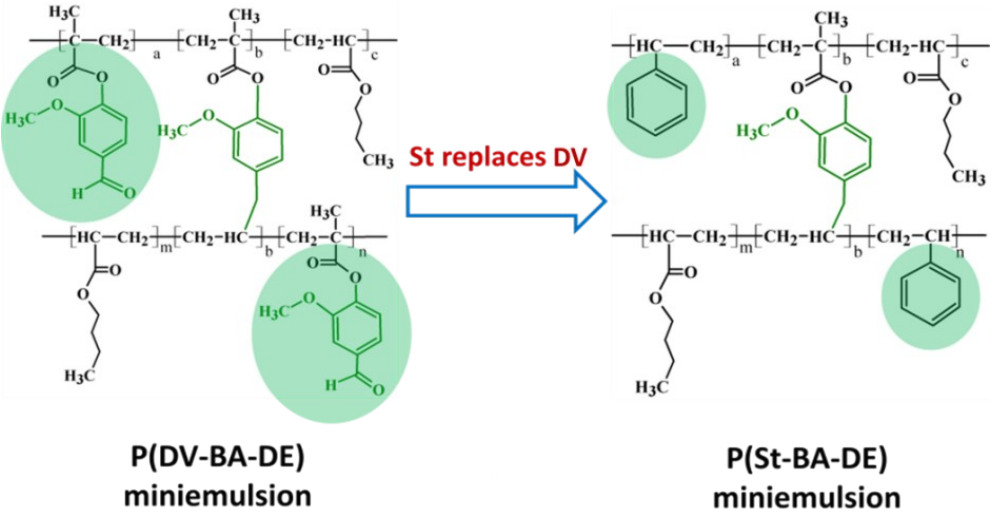

Fig. S2 Schematic diagram of the molecular structure of P(DV-BA-DE) and P(St-BA-DE).

The cured P(St-BA-DE) latex film has non-obvious inhibition zone against *E. coli* (Fig. S3a) and *S. aureus* (Fig. S3b), indicating that it did not has antibacterial activity against *E. coli* and *S. aureus*.

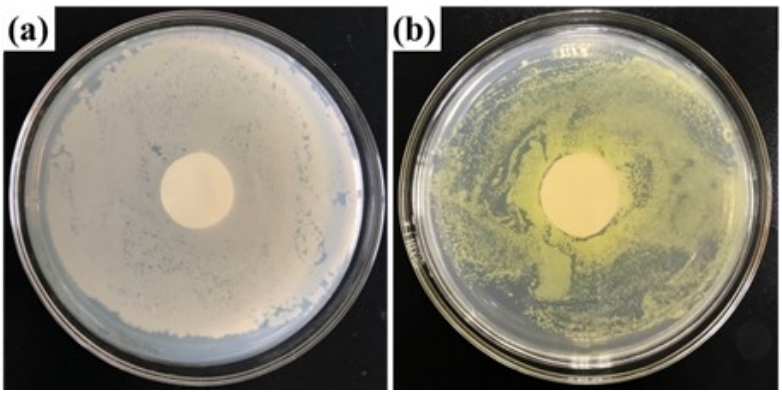

Fig. S3 Antibacterial performance of the cured P(St-BA-DE) latex film: (a) cultivate *E. coli* for 24 h, (b) cultivate *S. aureus* for 24 h.