Supporting information

Isolation of Cardanol Fractions from Cashew Nutshell Liquid (CNSL): A Sustainable Approach

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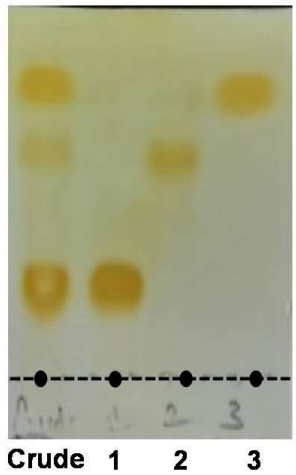

Figure S1: TLC image. crude CNSL, 1 stands for triene, 2 for diene, and 3 for monoene.

Column: Reveleris® C18 80g	Solvent A: Water	UV Threshold: 2 AU	ELSD Threshold: 50 mV
Flow Rate: 35 mL/min	Solvent B: MeOH:ACN 70:30	UV Sensitivity: Low	ELSD Sensitivity: Low
Equilibration: 3.0 min	Solvent C: <No solvent chosen>	UV1 Wavelength: 220 nm	Collection Mode: Collect Non
Run Length: 155.0 min	Solvent D: <No solvent chosen>	UV2 Wavelength: 254 nm	Per-Vial Volume: 25 mL
Injection Type: Dry	Slope Detection: Off	UV3 Wavelength: 280 nm	Non-Peak Volume: 25 mL

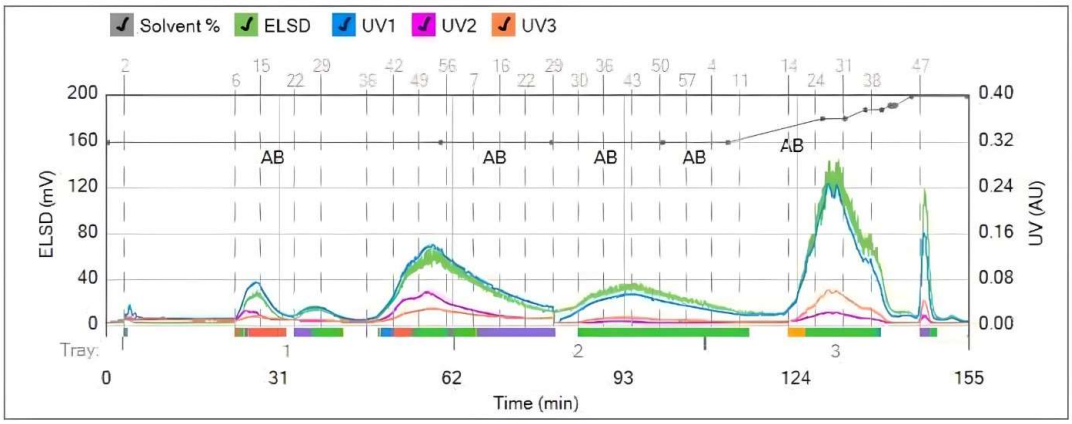

Figure S2: Method 1 used for flash column chromatography purification of crude CNSL.

Method Name: Cardanol method	Per-Vial Volume: 25 mL
Column: Reveleris® C18 80g	Non-Peaks: 25 mL
Flow Rate: 50 mL/min	UV1 Wavelength: 220 nm
Equilibration: 5.0 min	UV2 Wavelength: 280 nm
Run Length: 73.0 min	ELSD Carrier: Iso-propanol
Air Purge Time: 0 min	Solvent A: ACN:WATER:AA(80:20:1)
Slope Detection: Off	Solvent B: Acetonitrile
ELSD Threshold: 3 mV	Solvent C: <No solvent chosen>
UV Threshold: 0.02 AU	Solvent D: <No solvent chosen>
Collection Mode: Collect None	Injection Type: Dry

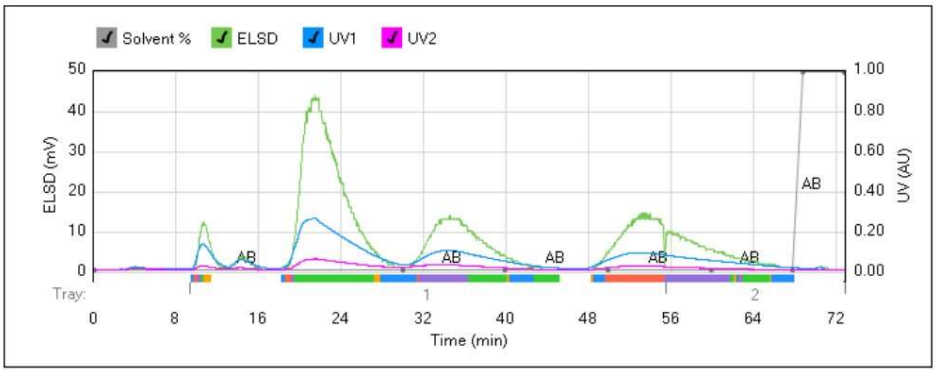

Figure S3: Method 2 used for flash column chromatography purification of crude CNSL.

Experimental procedure for the epoxidation of triene cardanol (cardanol tri-epoxide): Isolated cardanol triene (10 mmol, 2.98 g), glacial acetic acid (2.5 equiv. 1.43 mL), and amberlite (0.5 equiv., 1.5 g) were taken in a 100 mL round bottom flask. The reaction mixture was degassed under a vacuum and charged with nitrogen followed by toluene (15 mL). To this reaction mixture, H_2O_2 (4.5 equiv., 1.47 mL) was added dropwise and stirred at 55 °C for 7 h. The progress of the reaction mixture was monitored by TLC and after completion of the reaction the crude product was filtered and washed with saturated sodium carbonate followed by water. Removal of solvent under vacuum gave crude cardanol tri-epoxide (50% conversion of cardanol triene, calculated from the residual alkene Hs in triene, 5.93-5.76 ppm).

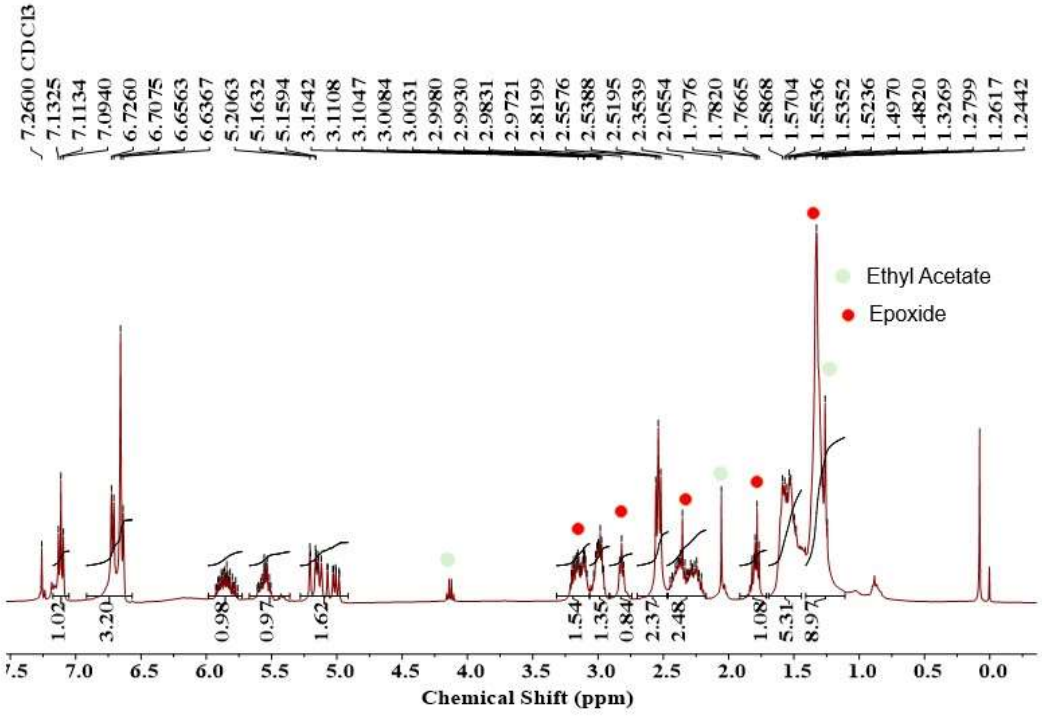

Figure S4. ^{1}H NMR of crude cardanol tri-epoxide. Recorded in $CDCl_3$ (NMR 400 MHz).