Electronic Supplementary Material (ESI) for Green Chemistry.

Antioxidant Silicone Oils from Natural Antioxidants

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Supporting information

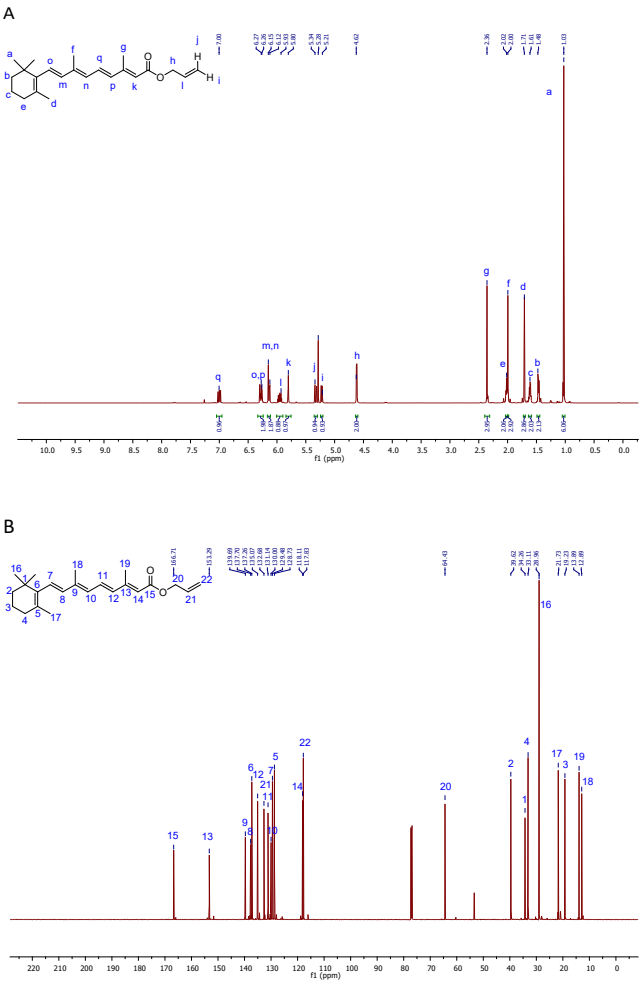


Figure S1. A) ^{1}H NMR and B) ^{13}C NMR of allyl retinoate.

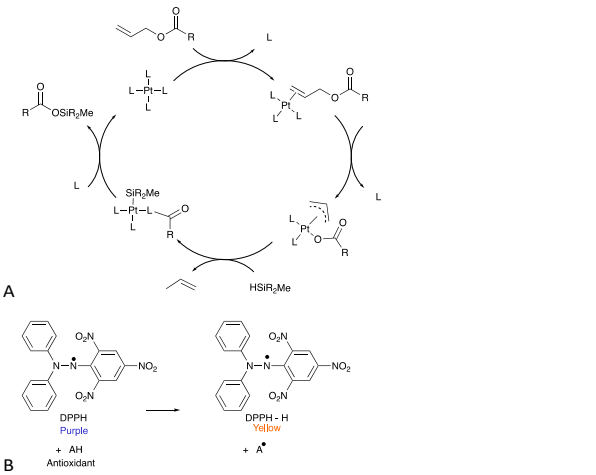
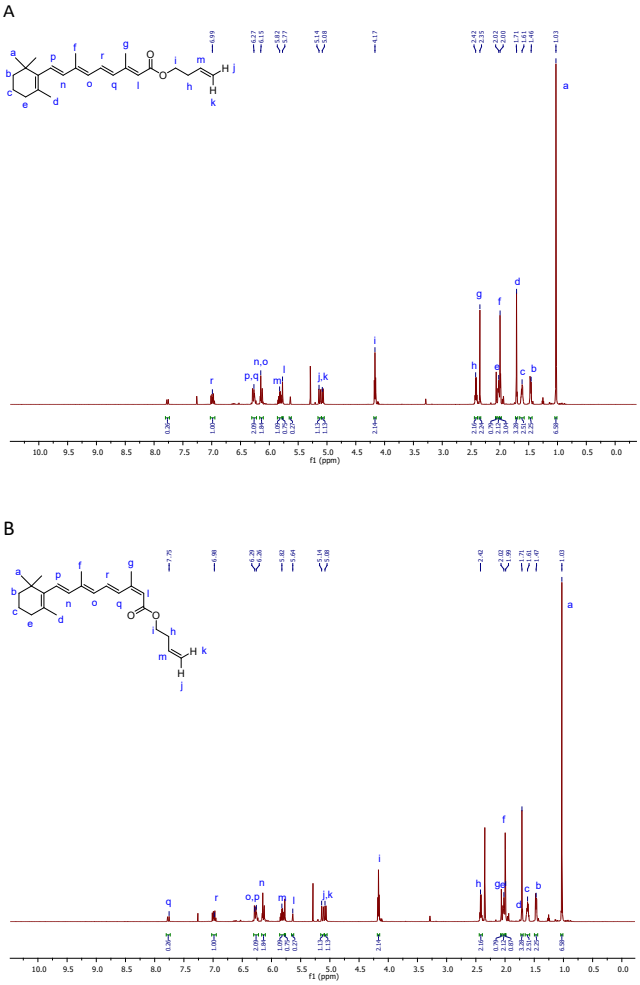


Figure S2. A) Competitive displacement of the π-allyl complex leading to silyl esters. B) DPPH reactivity.



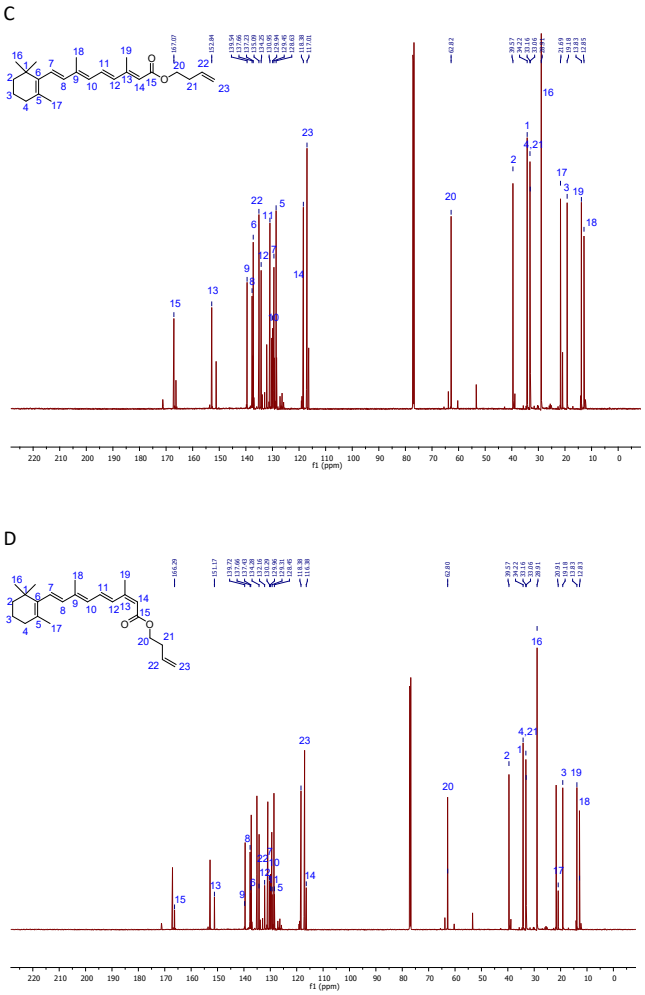


Figure S3. ^{1}H NMR of A) 2-*E* and B) 2-*Z* homoallyl retinoate. ^{13}C NMR of the C) 2-*E* and D) 2-*Z* homoallyl retinoate.

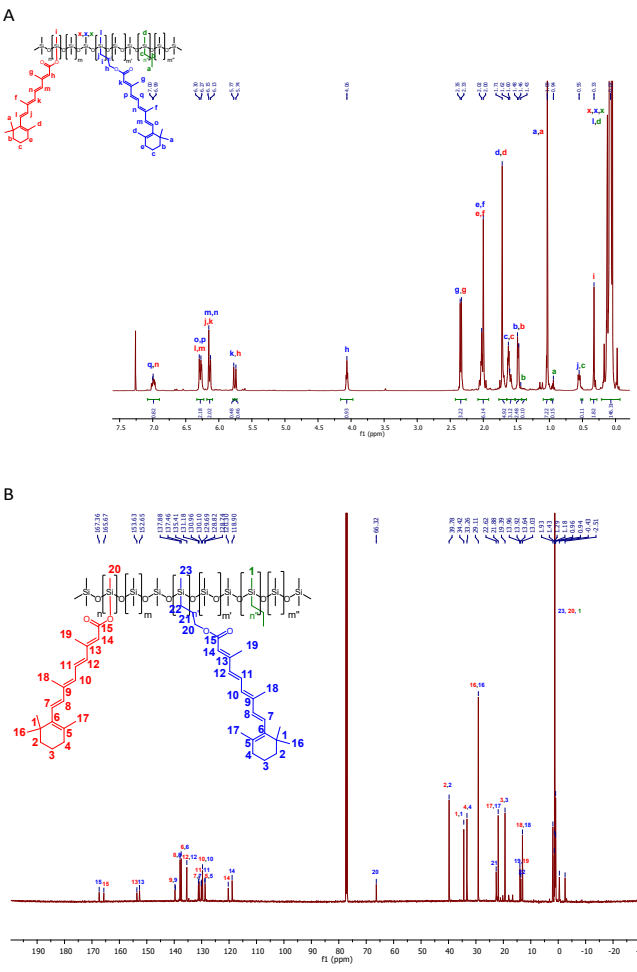
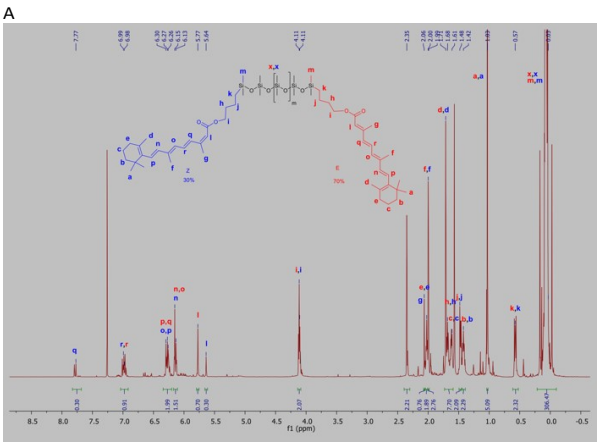


Figure S4. A: ^{1}H NMR and B: ^{13}C NMR spectrum of polymer **1P** in $CDCl_3$.



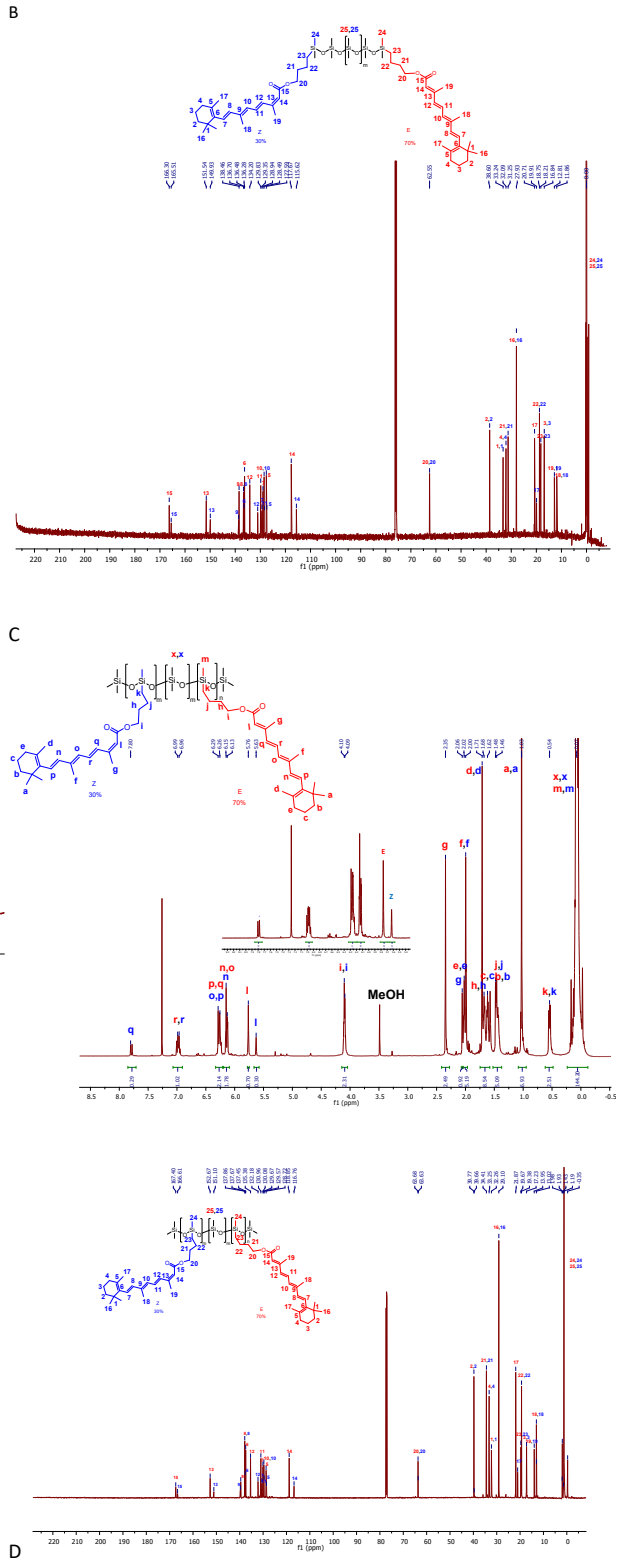


Figure S5. A: ^{1}H NMR and B: ^{13}C NMR spectrum of polymer **3T** in $CDCl_3$. C: ^{1}H NMR and D: ^{13}C NMR spectrum of polymer **3P** in $CDCl_3$.

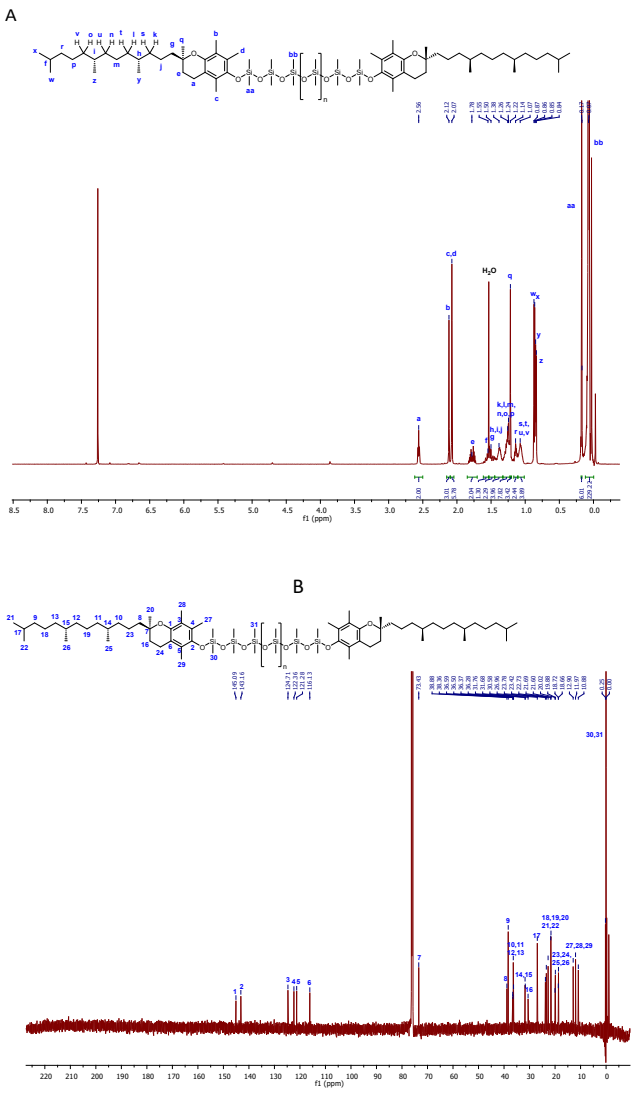
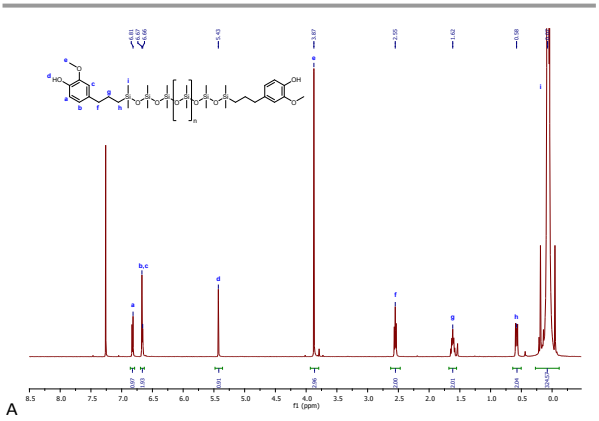


Figure S6. A) ^{1}H NMR and B) ^{13}C NMR of **4T**.



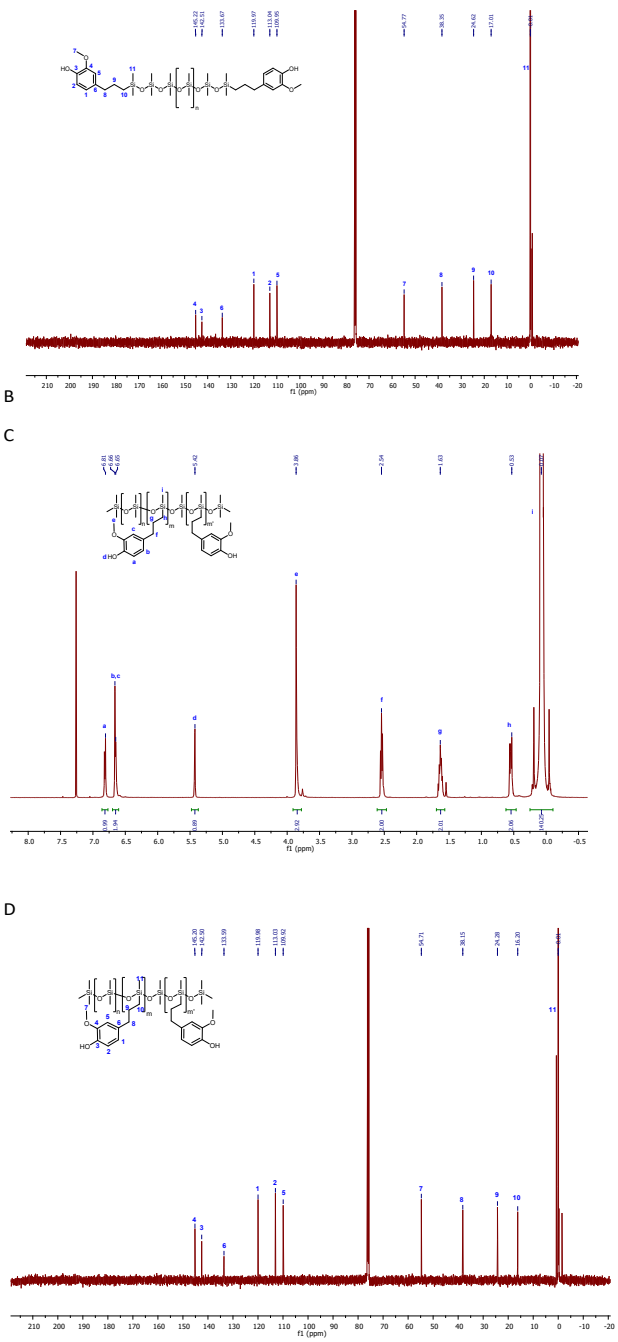


Figure S7. A) ^{1}H NMR and B) ^{13}C NMR of **5T**. C) ^{1}H NMR and D) ^{13}C NMR of **5P-6**.

Table S1. DPPH assay 80 mM stock solution preparation information.

	Total Vol (mL)	Mass (mg)	Moles (mmol)	concentration (mM)
P-4 control	4	389	0.32	80
Retinoate Acid	5	120	0.40	80
Homoallyl Retinoate	5	142	0.40	80
3T	3	719	0.24	80
3P	2	317	0.18	80
Tocopherol	4	138	0.32	80
Tocopherol Acetate	4	151	0.32	80
4T	4	858	0.32	80
Eugenol	4	53	0.32	80
5P-6	3	361	0.24	80
5T	2	224	0.08	40

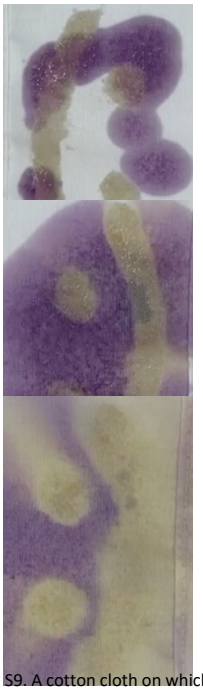


Figure S9. A cotton cloth on which yellow/brown drops of **5P-17** were spotted was soaked with 0.2 mM DPPH solution (the inverse of Figure 4A). A) Oil on cotton while DPPH (purple) is being dispensed; B) 15 s and C) 40 s after complete exposure

The data is provided in Figure 3 as log plots. See also a DPPH concentration dependent linear plot (Figure S8).

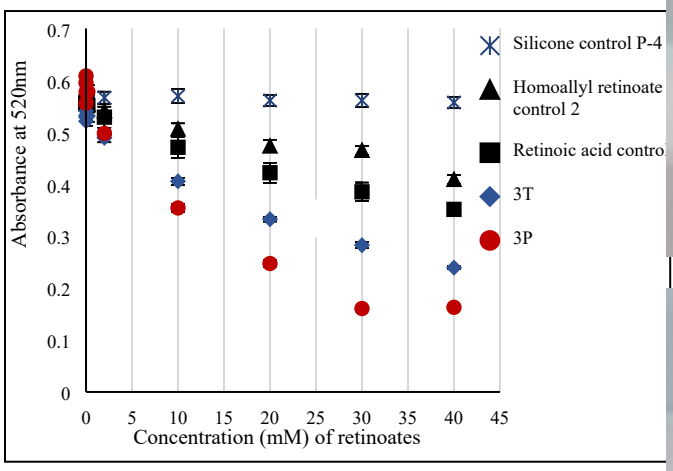
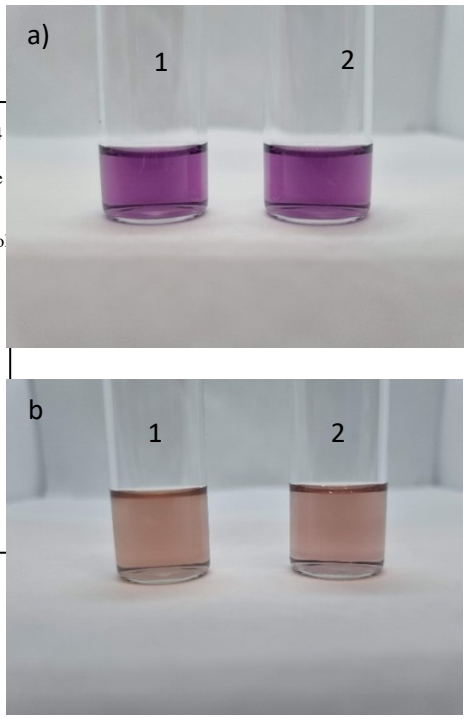


Figure S8. DPPH UV assay at 520 nm wavelength, comparison of anti-oxidation activity of different **3T** and **3P** to Vitamin A.



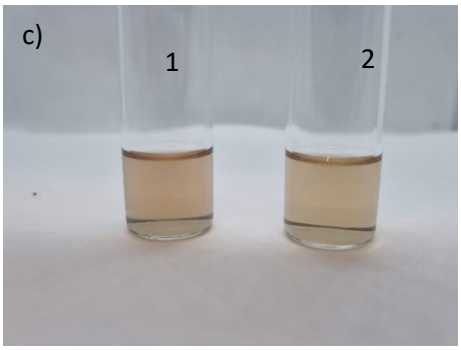


Figure S10. Antioxidant activity using DPPH at time 0, 3 min and 15 minutes of 1) **4P-17** and 2) **4P-26**

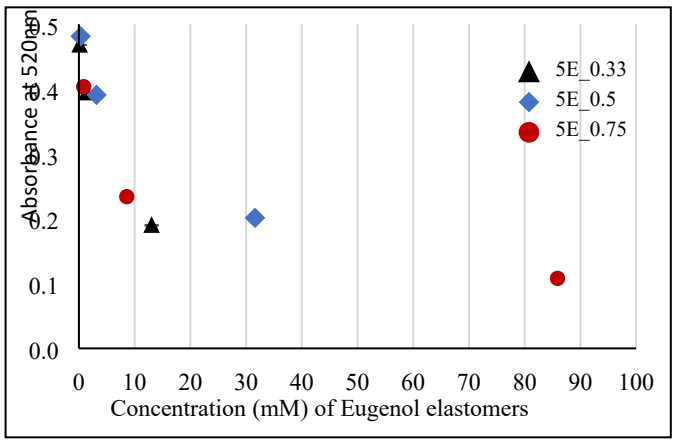


Figure S11. DPPH UV Analysis of **5E-33**, **-50**, **-75,** respectively, when mixed with 0.1 mM DPPH solution.

Table S2 Eugenol elastomer DPPH assay preparation information.

	Mass (mg)	Concentration in 1 mL IPA (mM)
5E-33	1	0.13
	10	1.30
	100	13.05
5E-50	1	0.32
	10	3.16
	100	31.60
5E-75	1	0.86
	10	8.59
	100	85.90

Table S3 Eugenol elastomer DPPH assay preparation information: No effect of exposure to H_2O_2.

	Amount (mg)	Time to Decolorization (s)
5P-17	100	81
5P-17*	100	81
5E-33	100	5510
5E-33*	100	5510
5E-50	100	5233
5E-50*	100	5233
5E-75	100	2019
5E-75*	100	2019

*Oil or elastomer treated with H_2O_2.