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Biomass-derived monomers for performance-differentiated fiber reinforced polymer composites

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Additional Figures

Table S1. Molecular properties of the synthesized FRPs. Isomerization is reported as the total of the diacid the isomerized.

Olefinic Monomer	% of Diacid Loading	Incorporation	M _w (x10 ⁻⁴)	PDI	Isomerization (cis,cis to cis,trans)	Isomerization (All cis to all trans)	Yield (mass basis)
Maleic Anhydride	10	9.8	1.95	2.0±0.1	-	1	96%
	25	25.6	1.89	2.0±0.1	-	5	97%
	50	49.7	1.70	2.0±0.1	-	7	92%
	75	74.3	1.61	2.0±0.1	-	11	89%
	100	100	1.54	2.0±0.1	-	12	93%
Fumaric Acid	10	10.2	1.97	2.0±0.1	-	-	96%
	25	24.2	1.82	2.0±0.1	-	-	93%
	50	47.1	1.57	2.0±0.1	-	-	95%
	75	77.2	1.42	2.0±0.1	-	-	91%
	100	100	1.31	2.0±0.1	-	-	86%
cis,cis Dimethyl Muconate	10	9.6	1.91	2.0±0.1	-	-	95%
	25	23.7	1.78	2.0±0.1	5	1	93%
	50	50.1	1.32	2.0±0.1	10	3	90%
	75	76.2	1.21	2.0±0.1	19	6	85%
	100	100	1.01	2.0±0.1	21	4	87%
trans,trans Dimethyl Muconate	10	9.8	1.95	2.0±0.1	-	-	97%
	25	24.1		2.0±0.1	-	-	96%
	50	50.3		2.0±0.1	-	-	91%
	75	76.2		2.0±0.1	-	-	89%
	100	100	1.26	2.0±0.1	-	-	90%

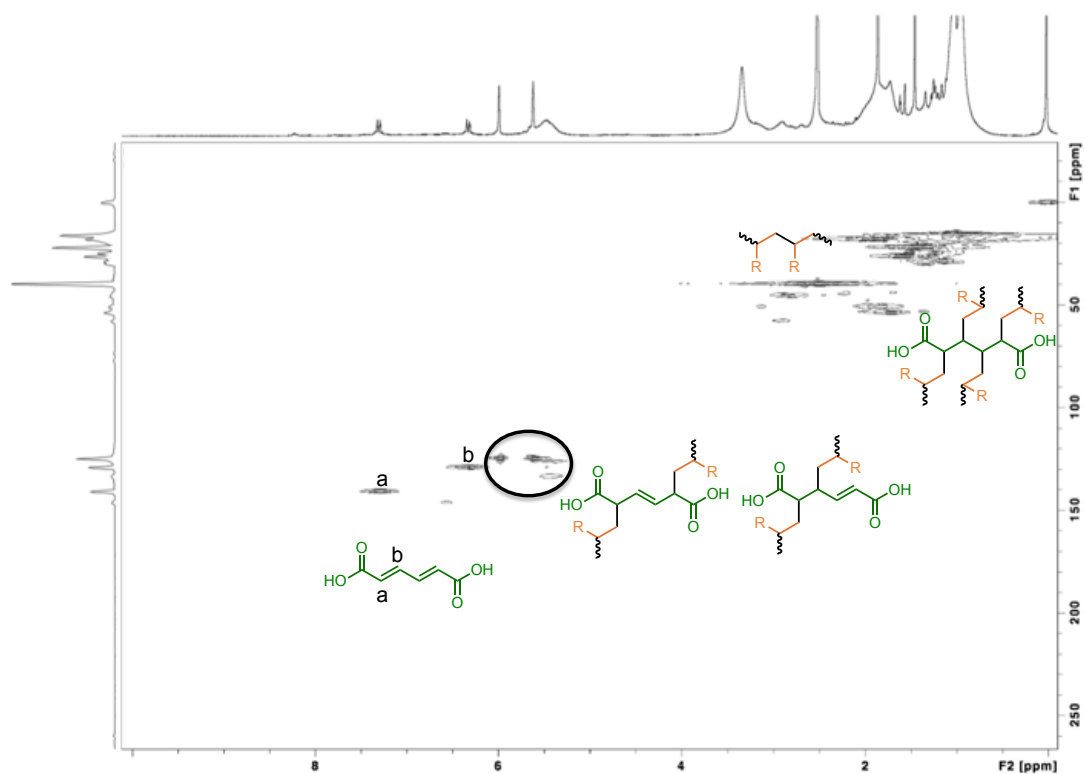


Figure S1. 2D NMR of the *trans,trans*-muconic acid/methacrylic acid polymer in d_6 -DMSO.

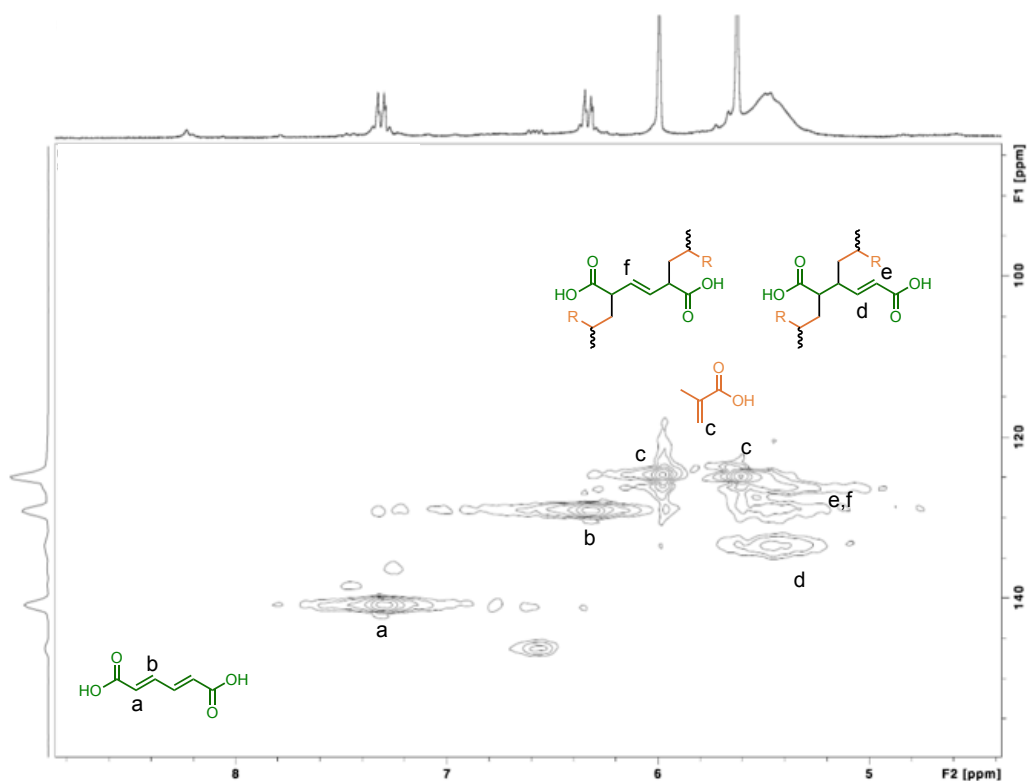


Figure S2. 2D NMR of the *trans,trans*-muconic acid/methacrylic acid polymer in d_6 -DMSO zoomed in on the olefinic polymer region with peaks labeled.

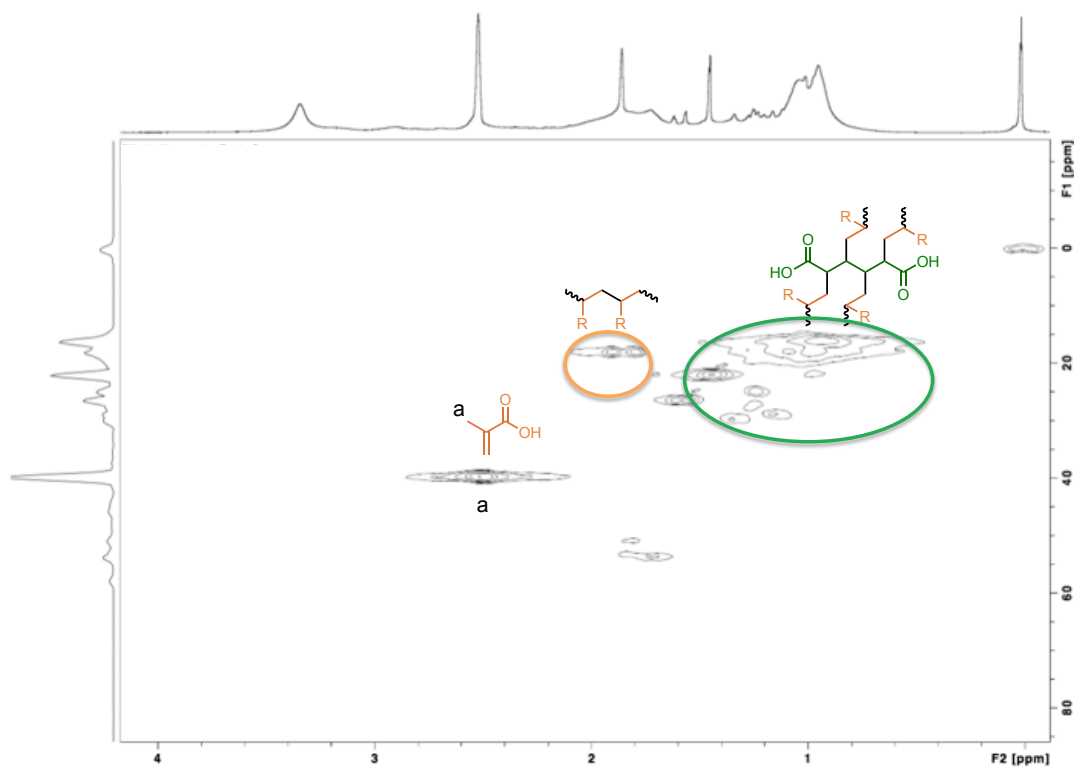


Figure S3. 2D NMR of the *trans,trans*-muconic acid/methacrylic acid polymer in d_6 -DMSO zoomed in on the olefinic polymer region with peak regions labeled as to what structure they correspond to.

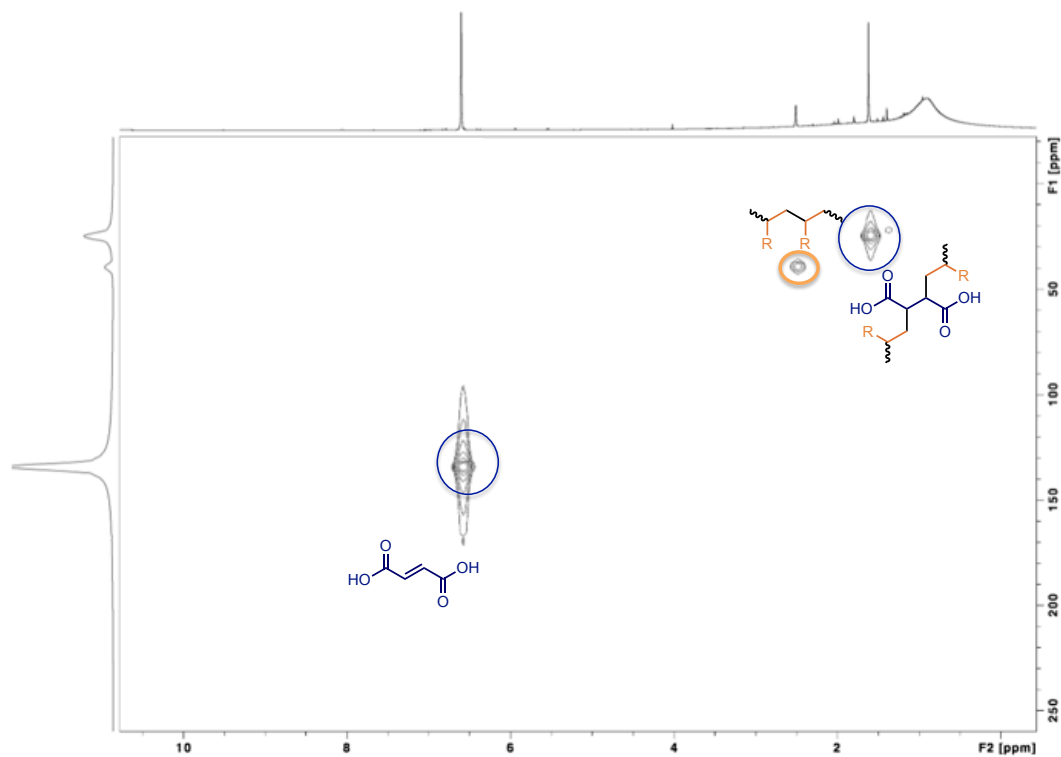


Figure S4. 2D NMR of the fumaric acid/methacrylic acid polymer in d_6 -DMSO. There is little methacrylic acid left over and the corresponding polymer regions are circled.

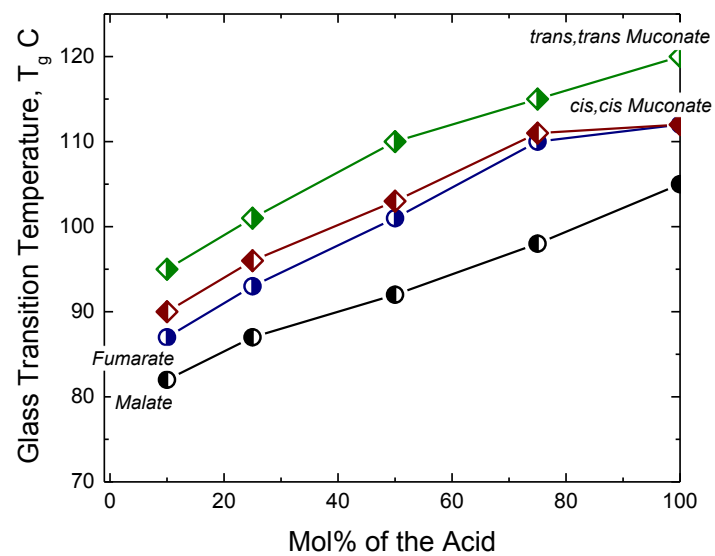


Figure S5. Glass transition temperatures of the methacrylic acid synthesized FRPs.

