Deep eutectic solvent-assisted bacterial devulcanization, detoxification, and degradation of waste tyre rubber

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Supplementary Information

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Supplementary tables

Table S1. CHNS analysis of treated GTR

Name	C (%)	S (%)	% C utilization	% S removal
GTR	88.66	2.34	-	-
DES-treated GTR	84.90	1.94	4.24	17.09
***R. rhodochrous*-treated GTR**	83.18	1.95	6.18	16.87
DES pretreated + *R. rhodochrous*-treated GTR	77.51	1.84	12.57	21.52

Table S2. Weight reduction measurement of GTR obtained from cultures of *R. rhodochrous* RPK1 and a combination of ChCl/Urea DES and *R. rhodochrous* in MSM medium after 28 days of incubation

Culture	Initial weight (g)	Final weight (g)	Weight loss (%)
MSM + GTR (Abiotic Control)	1.00	0.967	3.30 ± 2.36
MSM + *R. rhodochrous* + GTR	1.00	0.951	4.93 ± 1.15
MSM + *R. rhodochrous* + DES pretreated-GTR	1.00	0.841	15.84 ± 8.78

Table S3. Mass distribution identification of oligo-isoprenoids produced by enzymatic cleavage of polyisomeric chains of *R. rhodochrous*-treated GTR and ChCl/Ur DES-pretreated+*R. rhodochrous*-treated GTR by LC-MS.

Number of isoprene units (n)	Structural Formula	*m/z*	*m/z* $[M+Na]^+$	*m/z* $[M+Na+CH_3OH]^+$	*m/z* [M+P]	Retention time (min)
2	$C_{20}H_{32}O_2$	-	307	-	-	12.172
3	$C_{25}H_{40}O_2$	-	-	427	-	9.453
4	$C_{30}H_{48}O_2$	-	-	494	-	10.419
5	$C_{35}H_{56}O_2$	-	-	562.9	-	11.512
8	$C_{50}H_{80}O_2$	-	-	-	740.1	8.590
10	$C_{60}H_{96}O_2$	-	872.3	-	-	9.555
11	$C_{65}H_{104}O_2$	916	-	-	-	10.063

Supplementary figures

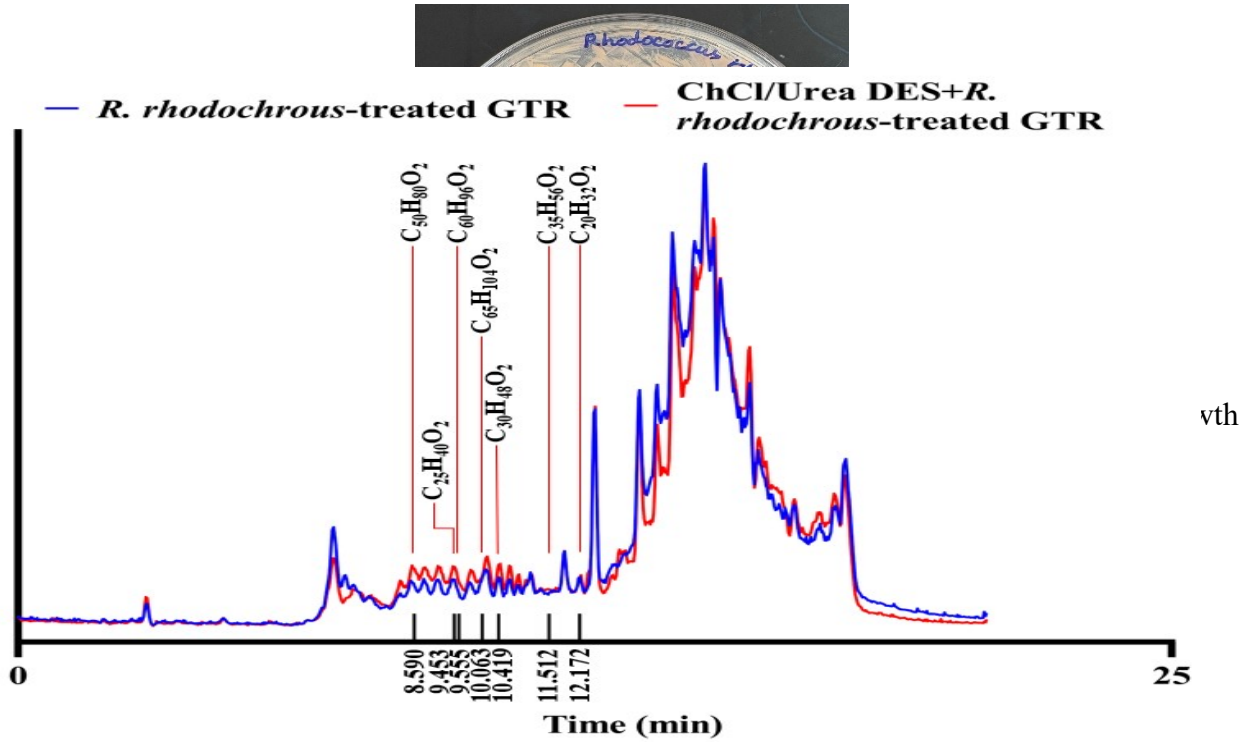

Figure S2. LC-MS spectra of extracted oligo-isoprenoids.