Electronic Supplementary Material (ESI) for Analytical Methods.

Supplementary Materials

Improved stability of salvianolic acid B from Radix *Salviae miltiorrhizae* in deep eutectic solvents

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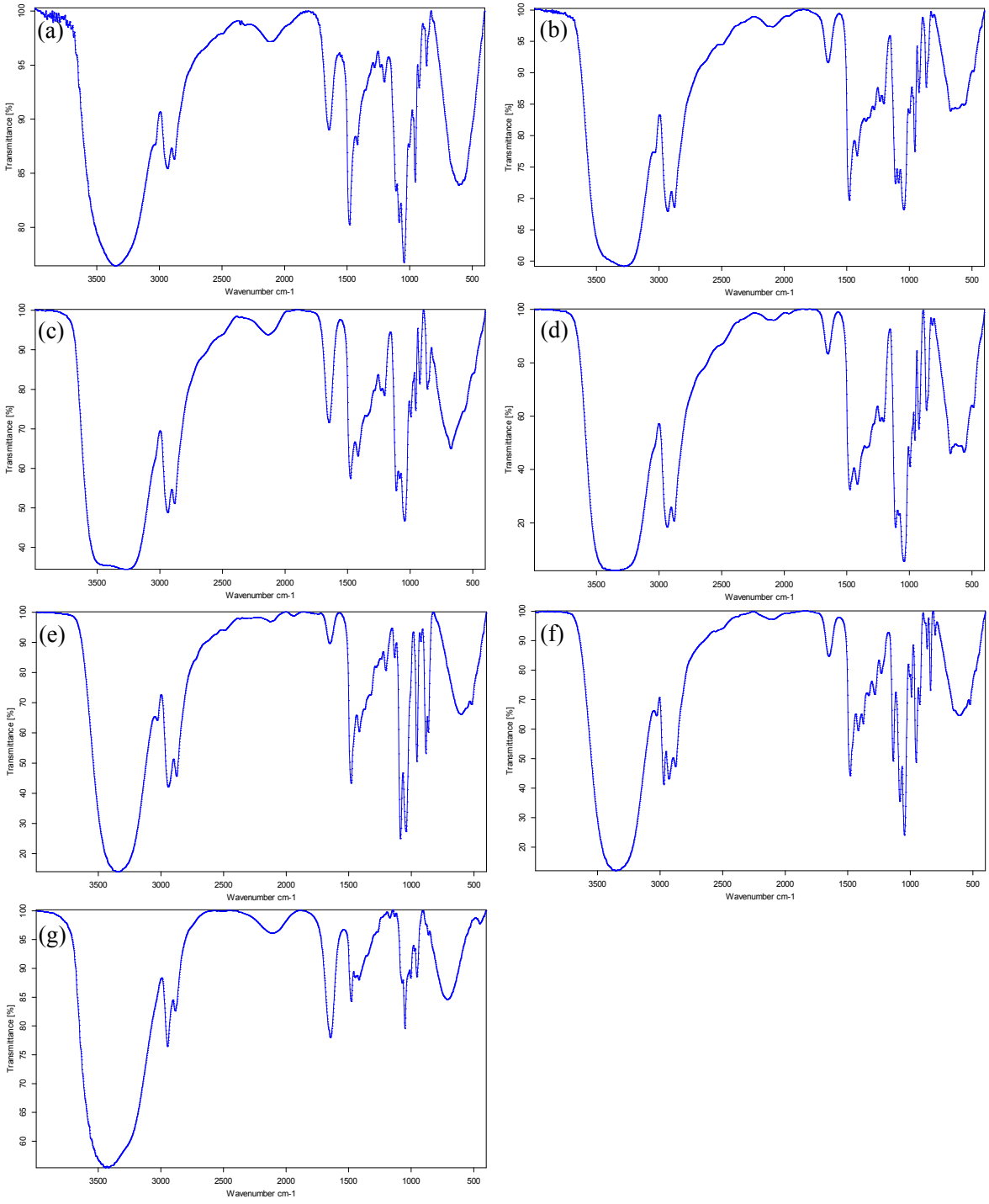

Supplement Figure 1 IR spectra of DESs used in the experiment. (a) ChCl-GL (1:1), (b) ChCl-GL (1:2), (c) ChCl-GL (1:3), (d) ChCl-GL (1:4), (e) ChCl-EG (1:2), (e) ChCl-PDO (1:2), (e) ChCl-BDO (1:2).

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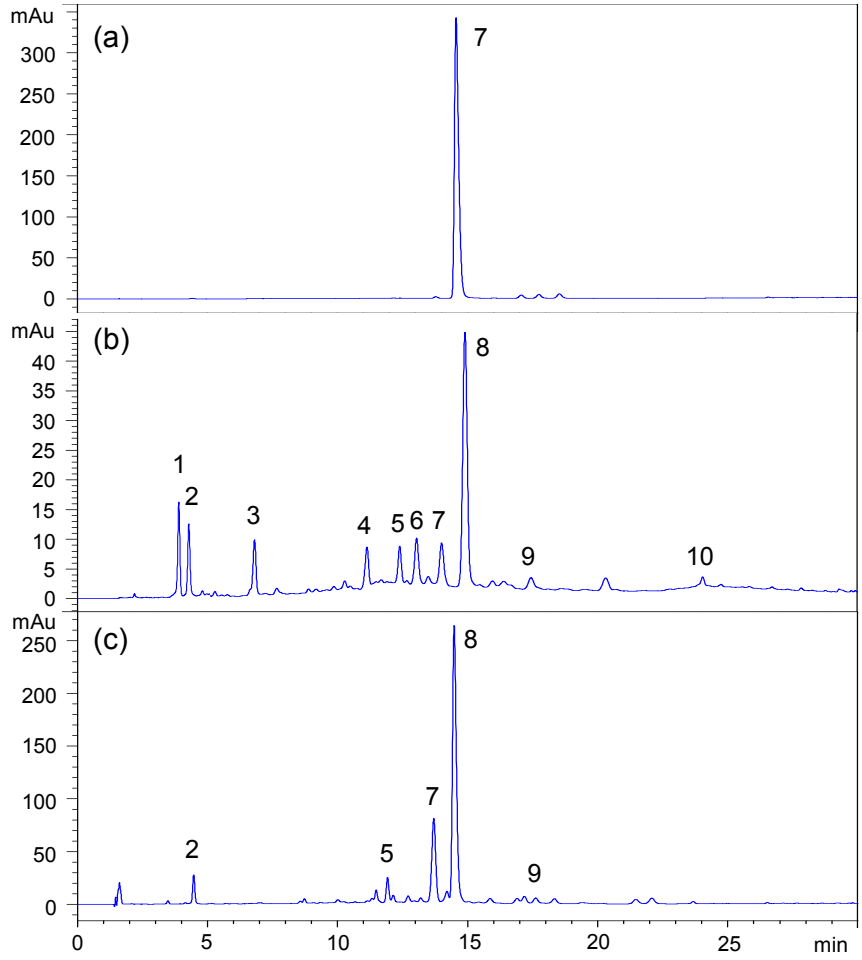

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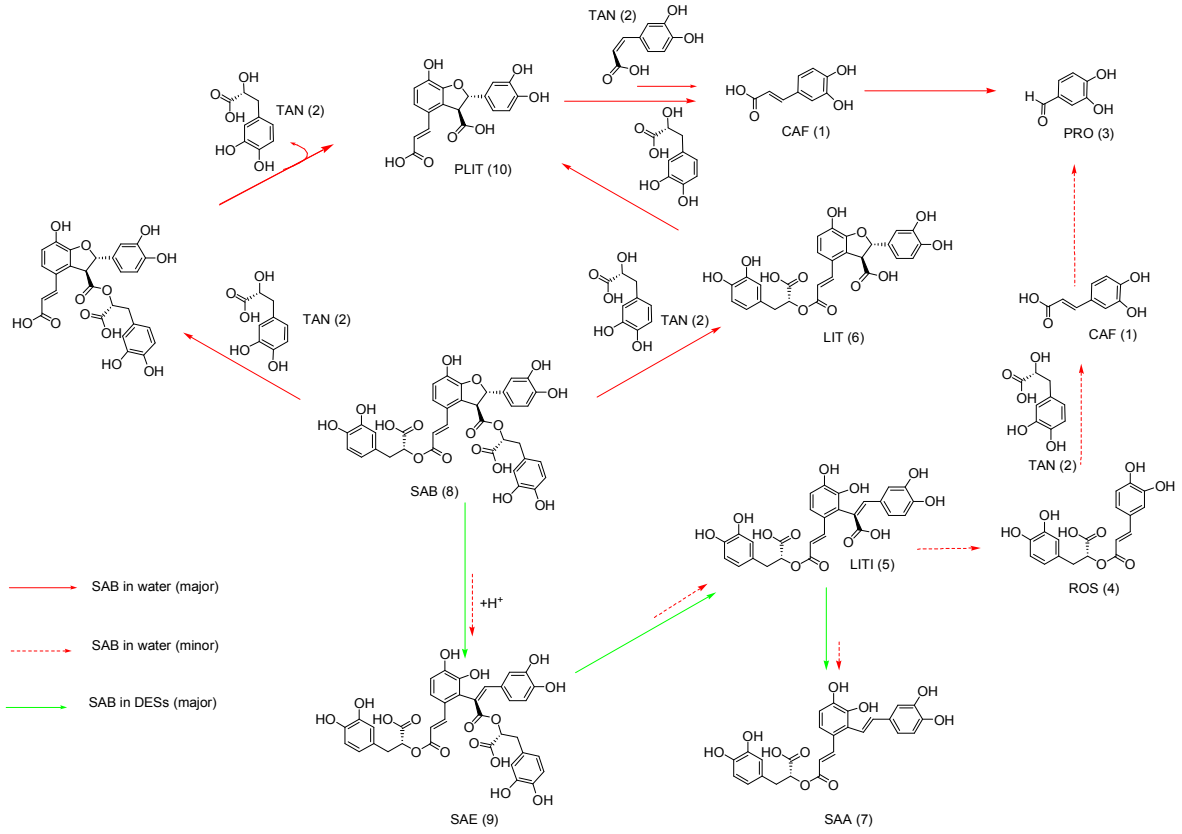
18 Supplement Figure 2 Chromatogram of salvianolic acid B and its degradation products in
19 different solvents at 90°C. (a) before degradation, (b) degradation in water for 12 h, (c)
20 degradation in ChCl-GL (1:2) for 12 h. The salvianolic acid B and its degradation products
21 were determined as (1) CAF, (2) TAN, (3) PRO, (4) ROS, (5) LITI, (6) LIT, (7) SAA, (8)
22 SAB, (9) SAE, (10) PLIT (Prolithospermic acid).



Supplement Figure 3 The proposed degradation pathways of salvianolic acid B.

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28 Supplement table 1 LC-MS/MS accurate measurements for the SAB and its degradation products.

No.	Name	Proposal ion	Experimental *m/z*	Theoretical *m/z*	Diff (ppm)	Elemental composition
1	Caffeic acid	$[M-H]^-$	179.0351	179.0356	2.79	$C_9H_8O_4$
		$[M-H-CO_2]^-$	135.0450	135.0456	4.44	$C_8H_8O_2$
2	Tanshinol	$[M-H]^-$	197.0470	197.0465	-2.54	$C_9H_{10}O_5$
		$[M-H-O]^-$	179.0352	179.0356	2.23	$C_9H_8O_4$
		$[M-H-O-CO_2]^-$	135.0450	135.0456	4.44	$C_8H_8O_2$
3	Protocatechuic aldehyde	$[M-H]^-$	137.0249	137.0247	-1.46	$C_7H_6O_3$
4	Rosmarinic acid	$[M-H]^-$	359.0793	359.0791	-0.56	$C_{18}H_{16}O_8$
5	Lithospermic acid isomer	$[M-H]^-$	537.1066	537.1067	0.56	$C_{27}H_{22}O_{12}$
		$[M-H-tanshinol]^-$	339.0521	339.0523	0.59	$C_{18}H_{12}O_7$
		$[M-H-tanshinol-CO_2]^-$	295.0620	295.0623	0.34	$C_{17}H_{12}O_5$
6	Lithospermic acid	$[M-H]^-$	537.1064	537.1067	0.56	$C_{27}H_{22}O_{12}$
		$[M-H-tanshinol]^-$	339.0521	339.0523	0.59	$C_{18}H_{12}O_7$
		$[M-H-tanshinol-CO_2]^-$	295.0622	295.0623	0.34	$C_{17}H_{12}O_5$
7	Salvianolic acid A	$[M-H]^-$	493.1169	493.1167	-0.41	$C_{26}H_{22}O_{10}$
		$[M-H-caffeoyl]^-$	313.0728	313.0732	1.28	$C_{17}H_{14}O_6$
		$[M-H-caffeoyl-H_2O]^-$	295.0621	295.0623	0.68	$C_{17}H_{12}O_5$
8	Salvianolic acid B	$[M-H]^-$	717.1500	717.1503	0.42	$C_{36}H_{30}O_{16}$
		$[M-H-rosmarinic\ acid]^-$	359.0793	359.0791	-0.56	$C_{18}H_{16}O_8$
9	Salvianolic acid E	$[M-H]^-$	717.1501	717.1503	0.28	$C_{36}H_{30}O_{16}$
		$[M-H-rosmarinic\ acid]^-$	359.0793	359.0791	-0.56	$C_{18}H_{16}O_8$
		$[M-H-rosmarinic\ acid-caffeoyl]^-$	179.0351	179.0356	2.79	$C_9H_8O_4$
		$[caffeoyl]^-$	137.0249	137.0247	-1.46	$C_7H_6O_3$
10	Prolithospermic acid	$[M-H]^-$	357.0624	357.0628	-1.12	$C_{18}H_{14}O_8$

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Supplement table 2 The observed rate constant (k), half-life ($T_{1/2}$) and shelf-life ($T_{0.9}$) for SAB in different solvents at different temperature.

T(°C)	SAB in solvents				
	solvent	K (/hour)	R^2	$T_{1/2}$ (hours)	$T_{0.9}$ (hours)
60	ChCl-EG (1:2)	0.0101	0.9761	68.61	10.44
	ChCl-PDO (1:2)	0.0122	0.9935	56.80	8.64
	ChCl-GL (1:2)	0.0097	0.9837	71.44	10.87
	ChCl-BDO (1:2)	0.0196	0.9847	35.36	5.38
	Water	0.0317	0.9928	21.86	3.32
90	ChCl-EG (1:2)	0.0526	0.9963	13.17	2.00
	ChCl-PDO (1:2)	0.0625	0.9770	11.09	1.69
	ChCl-GL (1:2)	0.0448	0.9978	15.47	2.35
	ChCl-BDO (1:2)	0.0696	0.9746	9.96	1.51
	Water	0.1522	0.9805	4.55	0.69
	pH 5	0.0599	0.9936	11.57	1.76
	GL	0.1031	0.9742	6.72	1.02
90	ChCl-GL (1:1)	0.0512	0.9897	13.54	2.06
	ChCl-GL (1:2)	0.0443	0.9988	15.64	2.38
	ChCl-GL (1:3)	0.0587	0.9799	11.81	1.80
	ChCl-GL (1:4)	0.0529	0.9849	13.10	1.99
90	0 vol% water	0.0453	0.9966	15.30	2.33
	25 vol % water	0.0952	0.9900	7.28	1.11
	50 vol % water	0.1225	0.9928	5.66	0.86
	75 vol % water	0.1227	0.9847	5.65	0.86
	100 vol % water	0.1563	0.9815	4.43	0.67