Electronic Supplementary Material (ESI) for Green Chemistry.
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Supplementary information:

One-pot extraction combined with metal-free photochemical aerobic oxidative desulfurization in deep eutectic solvent

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Table S1 The elemental analyses of C、H、N in the as-prepared DESs

Scheme S1 The picture of reaction equipment

Fig. S1 FT-IR spectra of ChCl·2HCOOH

Fig. S2 FT-IR spectra of ChCl·2CH_3CH_2COOH

Fig. S3 FT-IR spectra of ChCl·2$CH_3(CH_2)_2COOH$

Fig. S4 FT-IR spectra of ChCl·2$CH_3(CH_2)_3COOH$

Fig. S5 ^{1}H NMR spectrum of ChCl

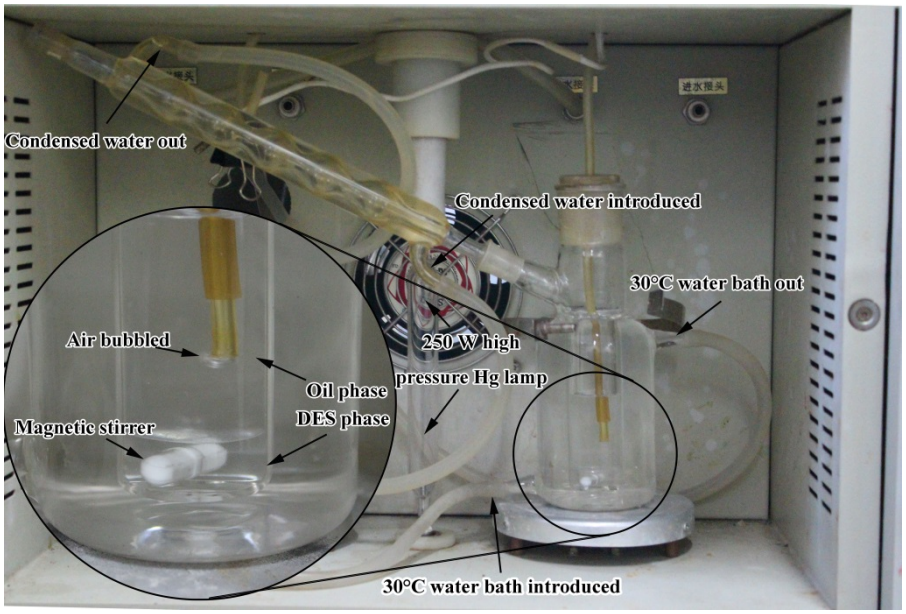
Fig. S6^{1}H NMR spectrum of CH_3COOH

Fig. S7 ^{1}H NMR spectrum of ChCl·2CH_3COOH

Fig. S8 Scan of potential energy surface for IBA with O_2 reaction

Table S1 The elemental analyses of C、H、N in the as-prepared DESs

DES		C %	H %	N %
ChCl·2HCOOH	Calculate Value	36.29	7.83	6.05
	Analysis Found	35.46	7.91	5.91
ChCl·2CH_3COOH	Calculate Value	41.61	8.54	5.39
	Analysis Found	40.75	8.59	5.28
ChCl·2C_2H_5COOH	Calculate Value	45.91	9.11	4.87
	Analysis Found	45.06	9.15	4.76
ChCl·2C_3H_7COOH	Calculate Value	49.43	9.57	4.43
	Analysis Found	48.61	9.61	4.36
ChCl·2C_4H_9COOH	Calculate Value	52.39	9.96	4.07
	Analysis Found	51.58	9.98	4.01



Scheme S1 The picture of reaction equipment

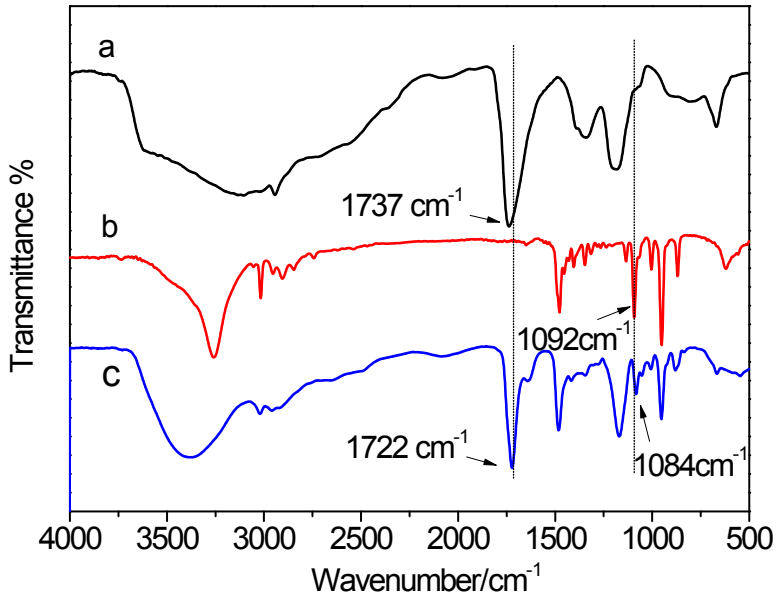


Fig. S1 FT-IR spectra of ChCl·2HCOOH
a. HCOOH; b. ChCl; c. ChCl·2HCOOH

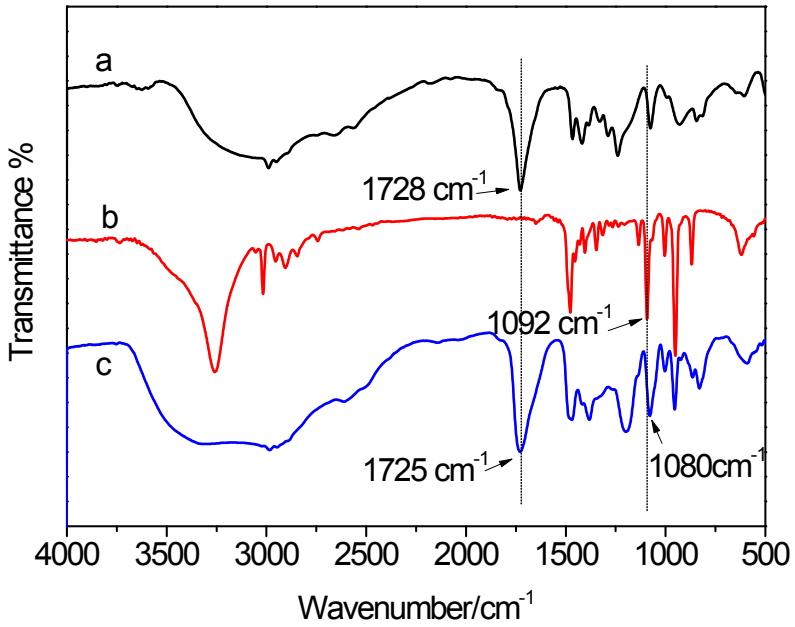


Fig. S2 FT-IR spectra of ChCl·2CH_3CH_2COOH
a. CH_3CH_2COOH; b. ChCl; c. ChCl·2CH_3CH_2COOH

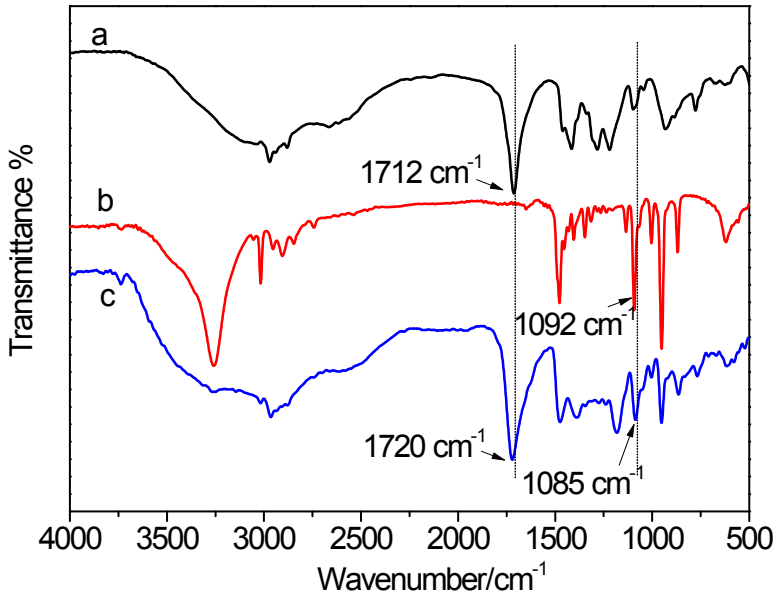


Fig. S3 FT-IR spectra of $ChCl{\cdot}2CH_3(CH_2)_2COOH$

a. $CH_3(CH_2)_2COOH$; b. ChCl; c. $ChCl{\cdot}2CH_3(CH_2)_2COOH$

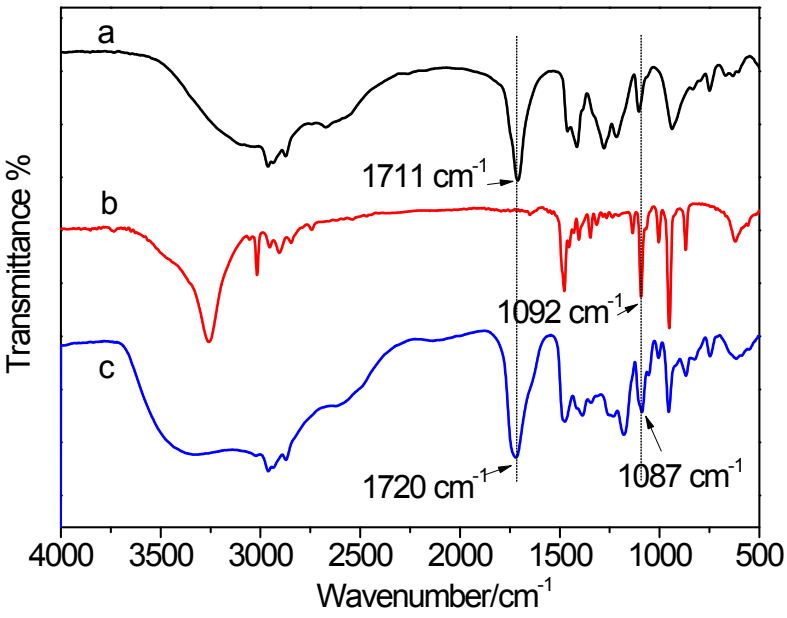


Fig. S4 FT-IR spectra of $ChCl{\cdot}2CH_3(CH_2)_3COOH$

a. $CH_3(CH_2)_3COOH$; b. ChCl; c. $ChCl{\cdot}2CH_3(CH_2)_3COOH$

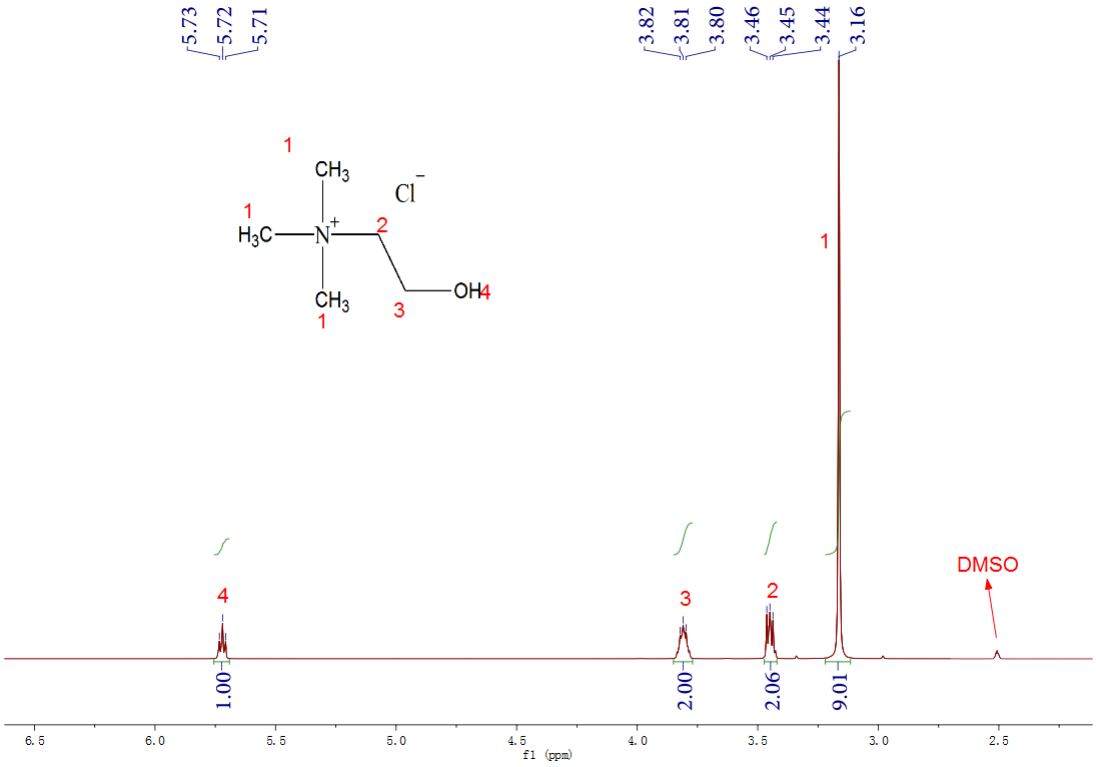


Fig S5 [1] H NMR spectrum of ChCl

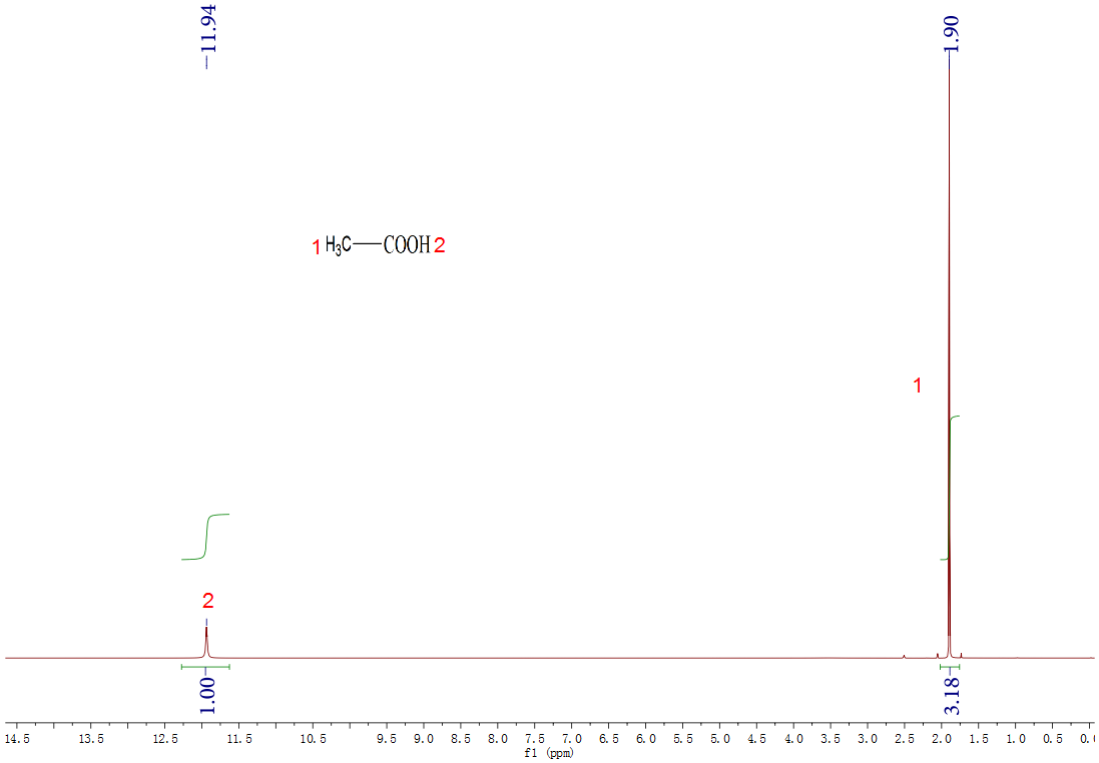


Fig S6 [1] H NMR spectrum of CH_3COOH

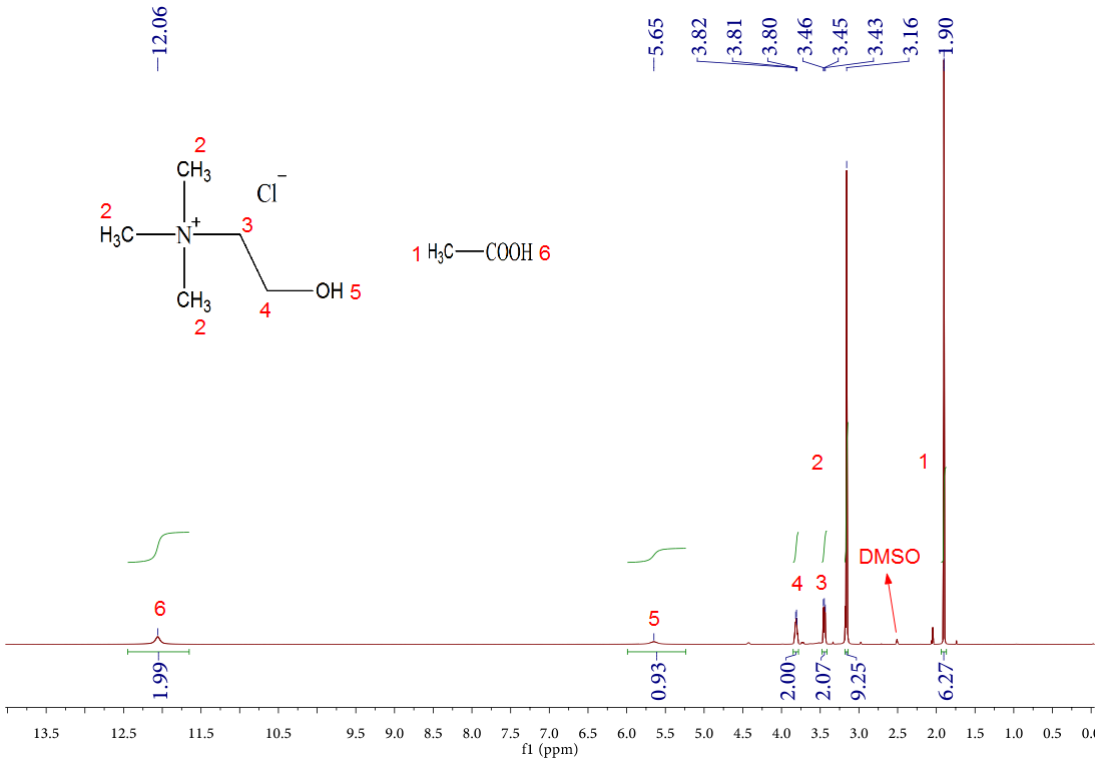


Fig S7 [1] H NMR spectrum of ChCl·2CH_3COOH

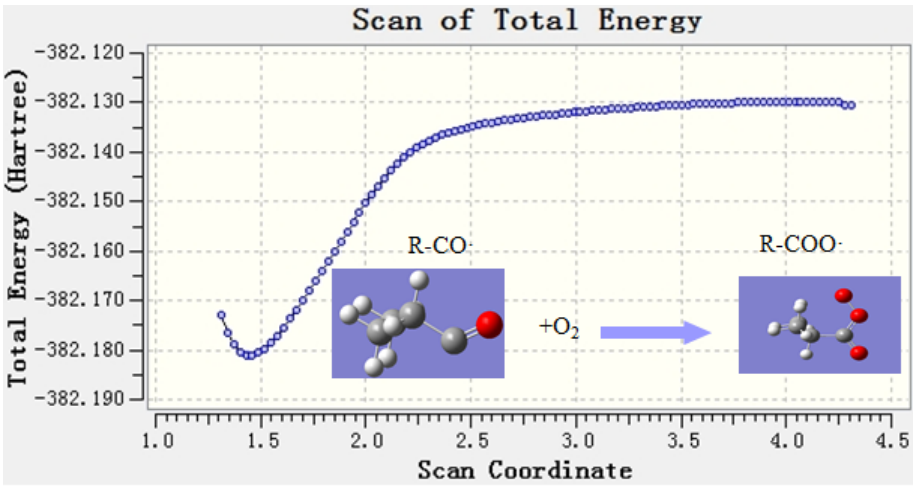


Fig. S8 Scan of potential energy surface for IBA with O_2 reaction