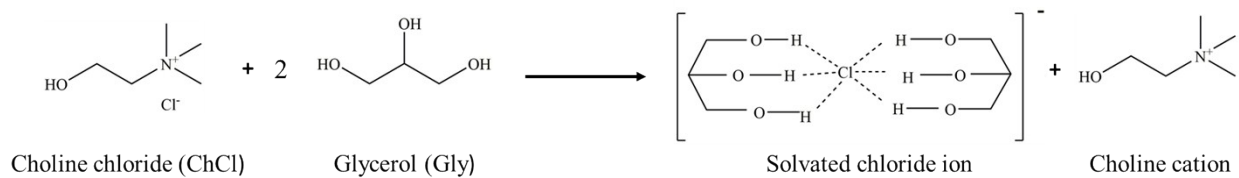


## **Supporting Information**

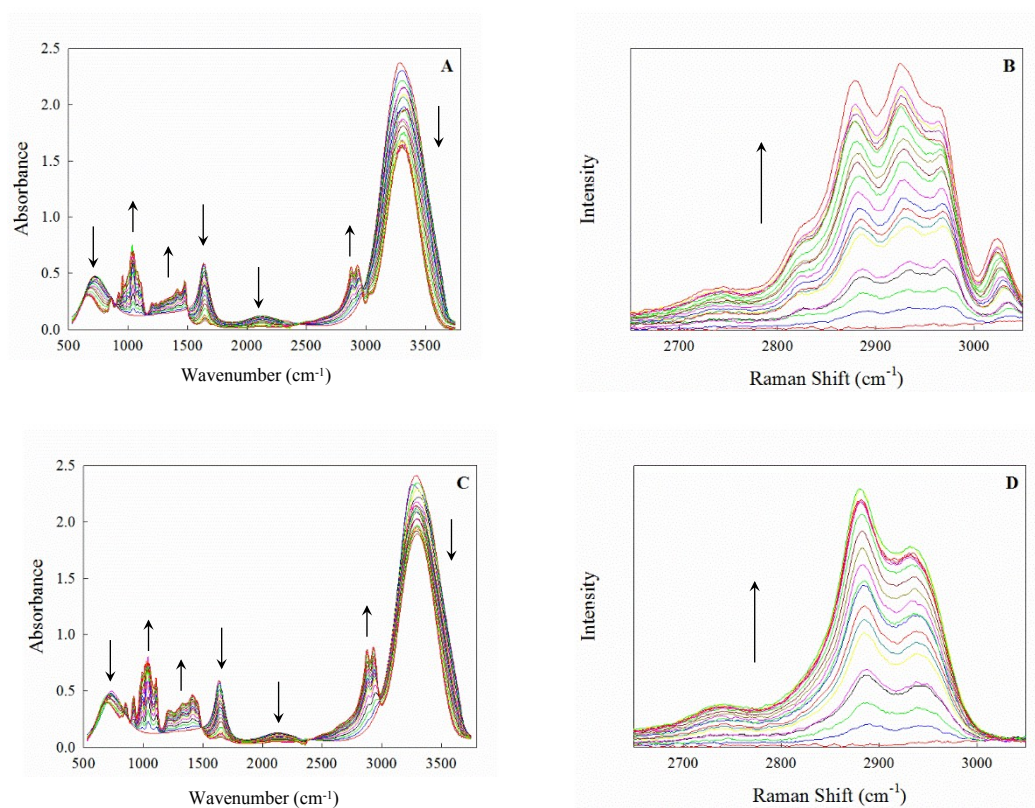
### **Deep Eutectic-Water Binary Solvent Associations Investigated by Vibrational Spectroscopy and Chemometrics**

**Table S1** Name of data matrices that are used in this work

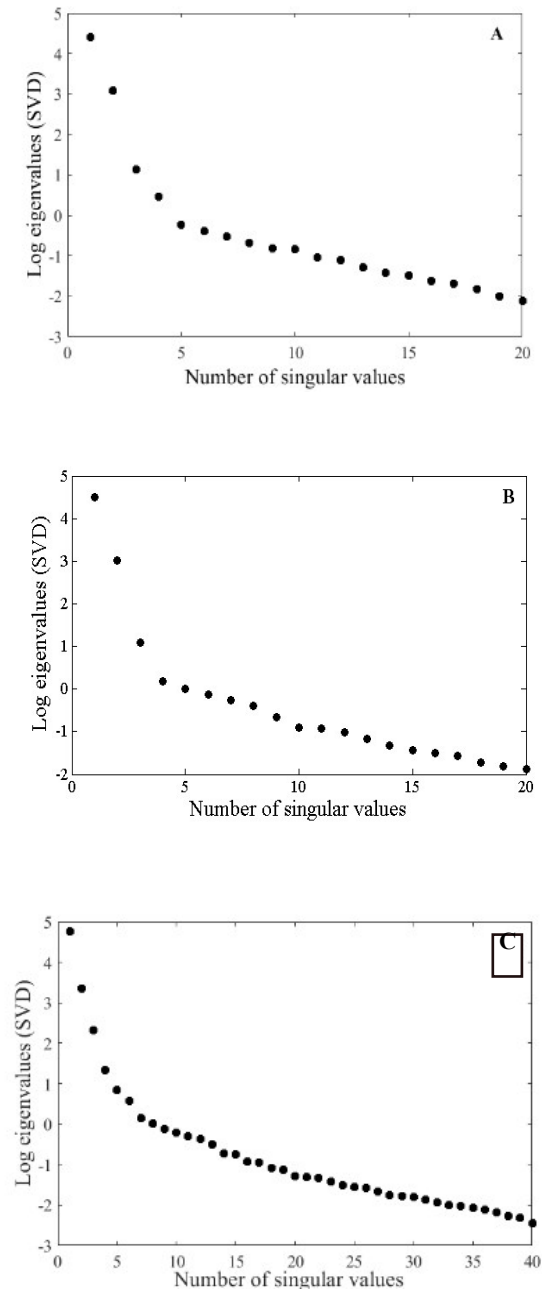
<b>Data matrix names</b>	<b>Abbreviation</b>
FTIR spectra of GDES-water	<b>D<sub>1</sub></b>
Raman spectra of GDES-water	<b>D<sub>2</sub></b>
FTIR spectra of Gly-water	<b>D<sub>3</sub></b>
Raman spectra of Gly-water	<b>D<sub>4</sub></b>
Row-wise augmented matrices contains Raman and FTIR spectra of GDES- water binary mixtures	<b>D<sub>5</sub></b>
Row-wise augmented matrices contains Raman and FTIR spectra of Gly-water binary mixtures	<b>D<sub>6</sub></b>
Column-wise augmented matrices of GDES-water and Gly-water binary mixtures contain FTIR and Raman spectrums (global matrix)	<b>D<sub>7</sub></b>



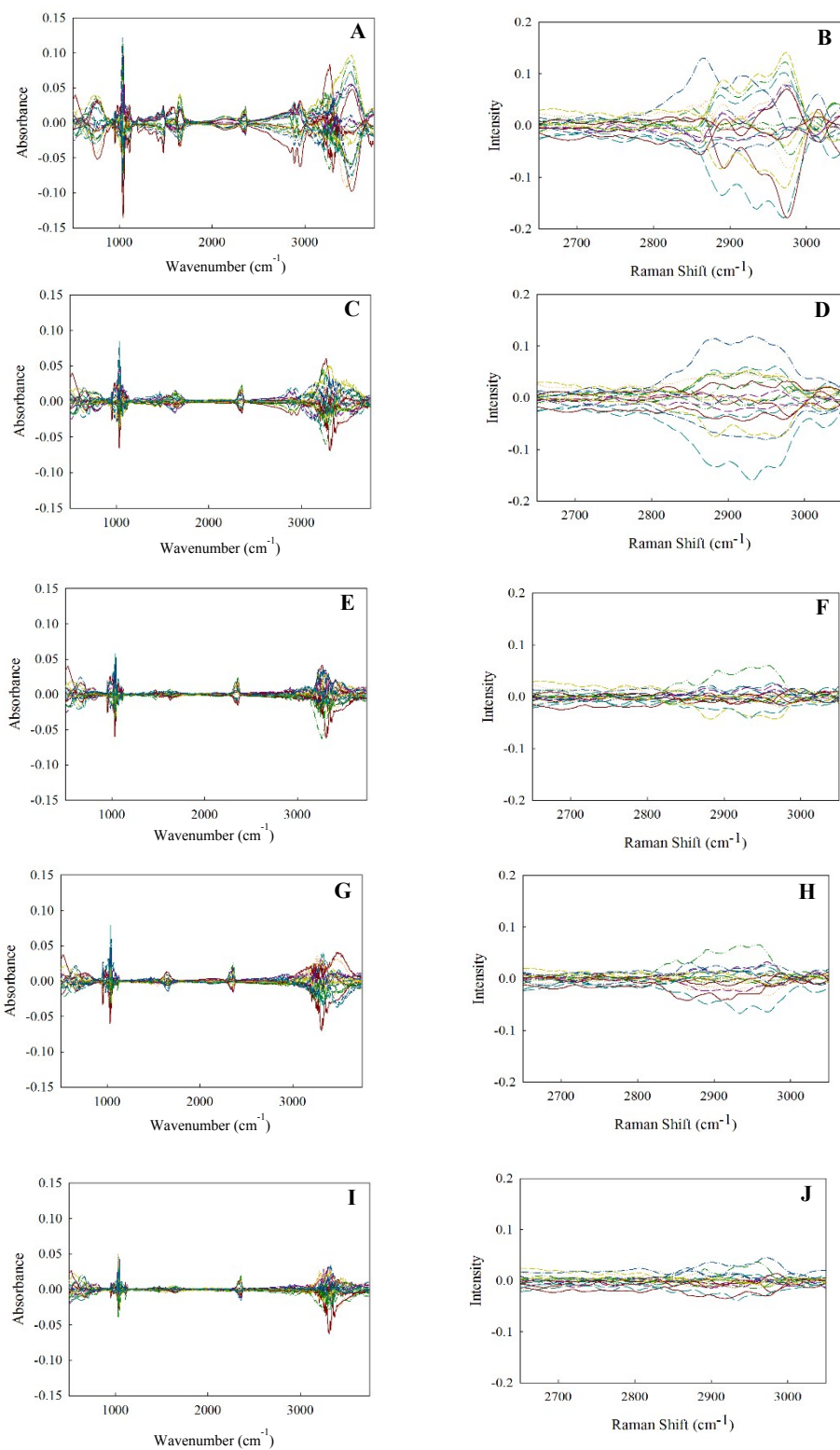
**Scheme 1.** The structures of GDES.



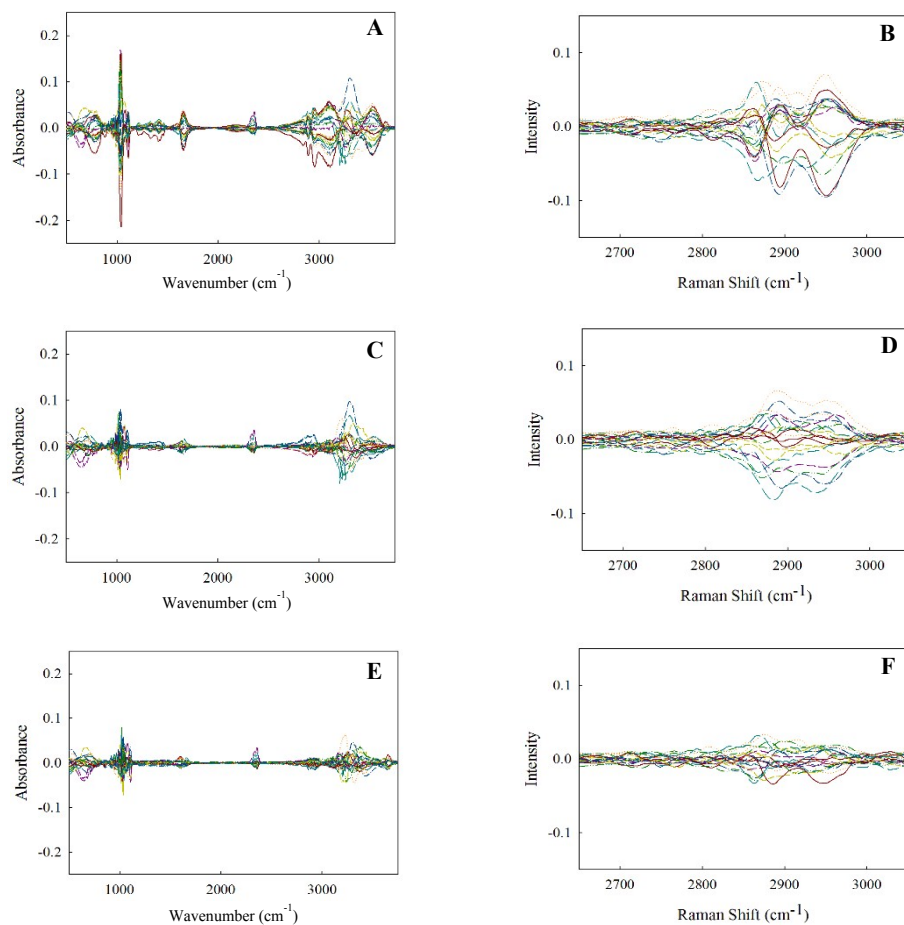
**Fig. S1** Changes in A, C) FTIR and B, D) Raman spectra of binary mixture of GDES-water (A, B) and Gly-water (C, D). The mole fractions of GDES and Gly in the binary solvent mixtures varied from 0.0 to 1.0.



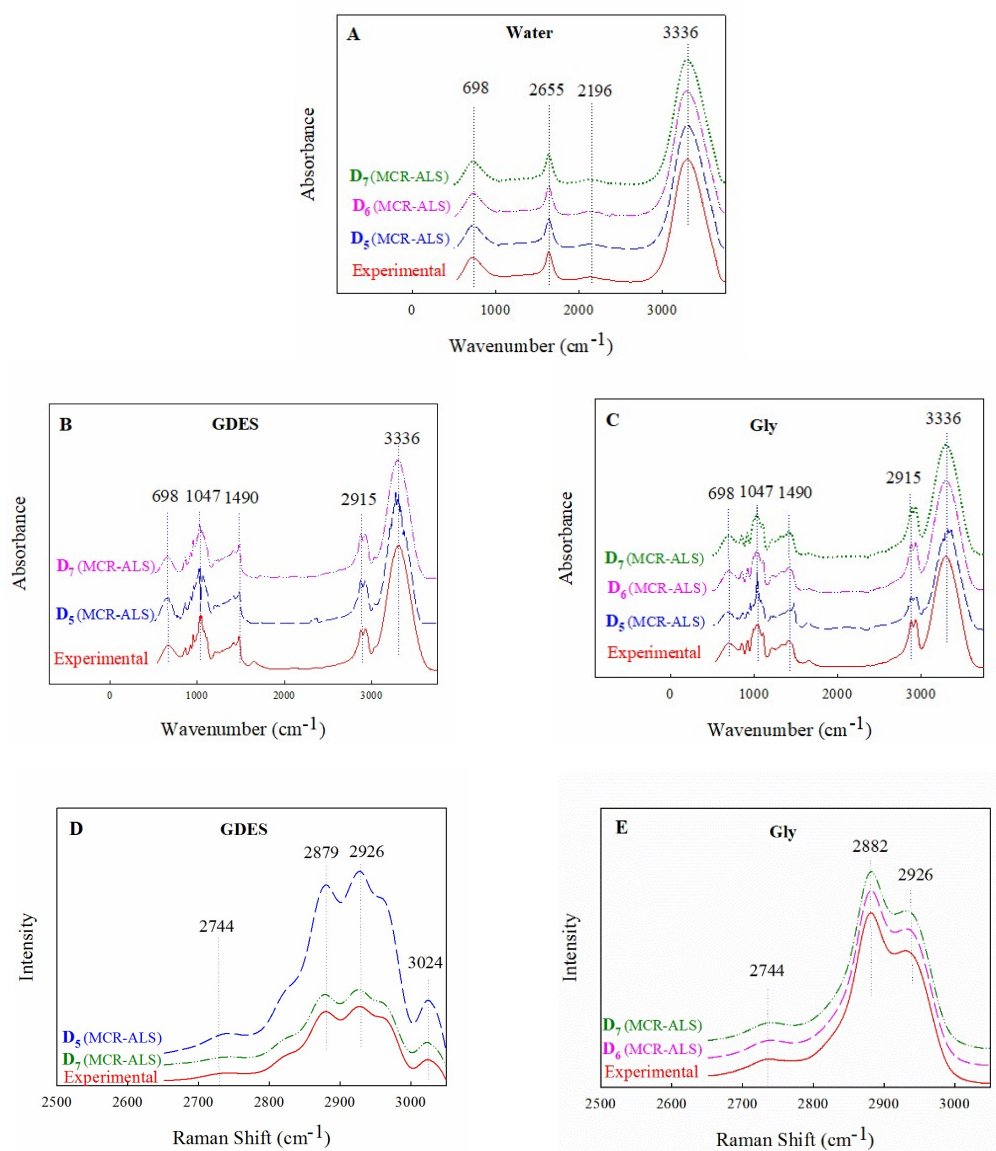
**Fig. S2** Plot of log (EV) vs. number of principle components obtained from SVD analysis of data matrice A)  $D_5$ , B)  $D_6$  and C)  $D_7$ .



**Fig. S3** Residual IR (left column) and Raman (right column) plots for the two-component (A, B), three-component (C, D), four-component (E, F), five-component (G, H) and six-component (I, J) MCR-ALS model on the row-wise augmentation of FTIR and Raman data matrices of GDES-water binary mixture (**D<sub>5</sub>**).

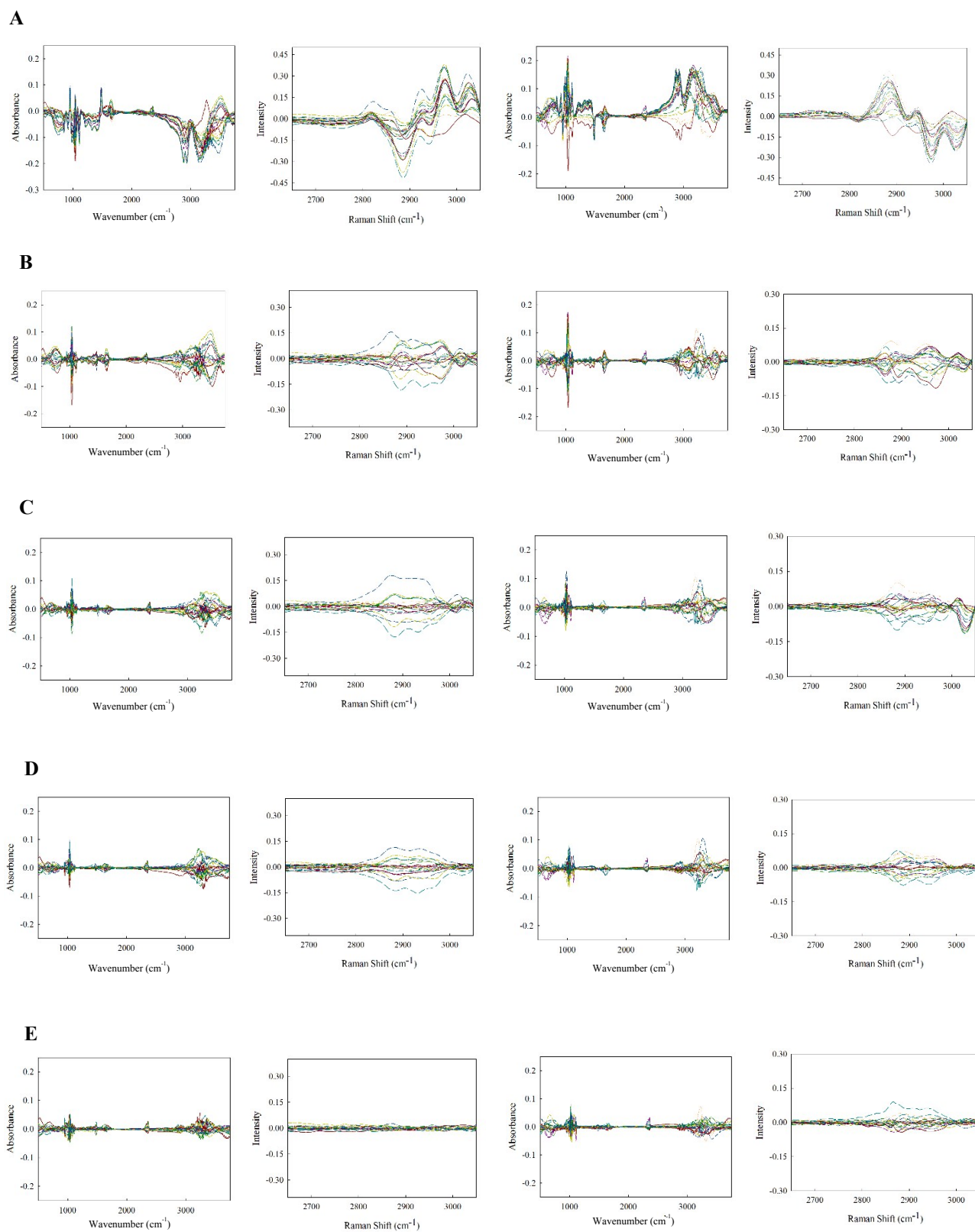


**Fig. S4** Residual IR (left column) and Raman (right column) plots for the two-component (A, B), three-component (C, D) and four-component (E, F) of MCR-ALS model on the row-wise augmentation of FTIR and Raman data matrices of Gly-water binary mixture ( $\mathbf{D}_6$ ).



**Fig. S5** Comparative between native (experimental) and MCR-resolved FTIR spectrum of A) water, B) GDES and C) Gly and Raman spectrum of D) GDES and E) Gly.





**Fig. S6** Residual plots for the two-component (A), three-component (B), four-component (C), five-component (D) and six-component (E) MCR-ALS model on the global data matrix ( $\mathbf{D}_7$ ) contain: FTIR and Raman data matrices of GDES, FTIR and Raman data matrices of Gly in columns 1-4, respectively.