Electronic Supplementary Material (ESI) for RSC Advances.

SUPPLEMENTARY INFORMATION

Efficient one-pot synthesis of deoxyfructosazine and fructosazine from D-glucosamine hydrochloride under basic ionic liquid as a dual solvent-catalyst

Lingyu Jia, [a,b] Yingxiong Wang, [a] Yan Qiao, [a] Yongqin Qi, [a] Xianglin Hou * [a]

[a] *State Key Laboratory of Coal Conversion, Institute of Coal Chemistry, Chinese Academy of Sciences, 27 South Taoyuan Road, Taiyuan, 030001, PR China*

[b] *University of Chinese Academy of Sciences, Beijing, 100049, PR China*

Fax: +86 351 4041153; Tel: +86 351 4049501

E-mail: houxl@sxicc.ac.cn

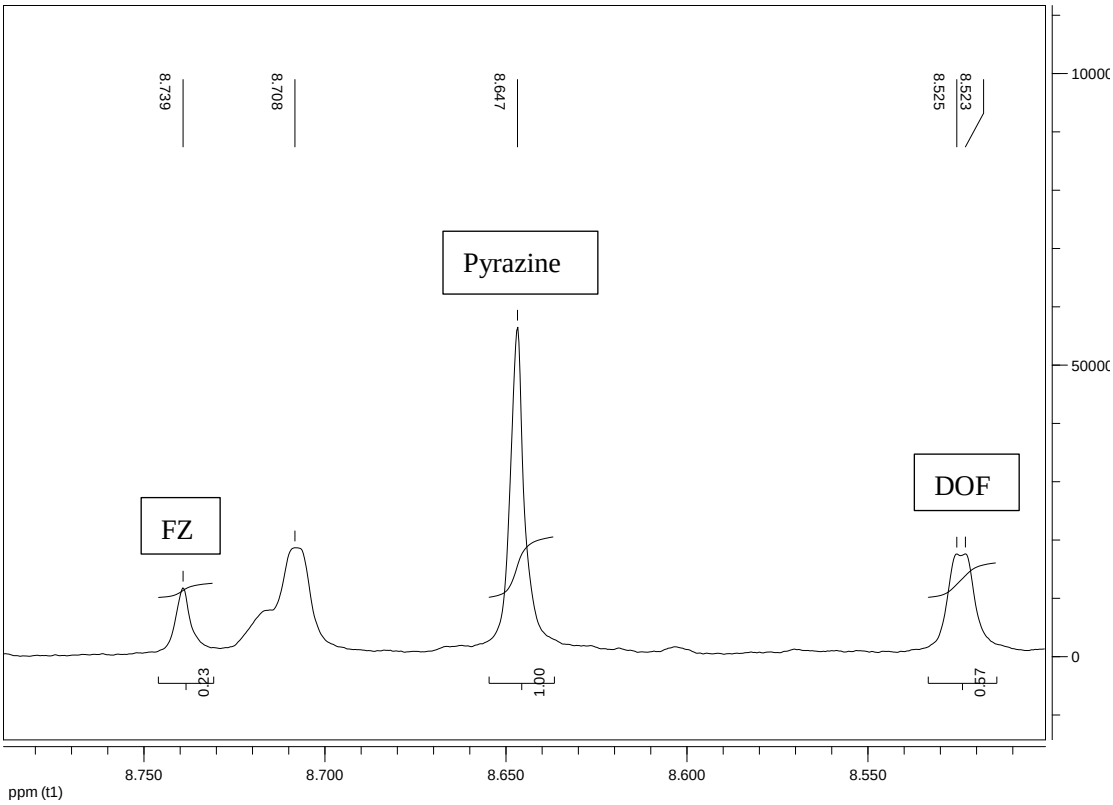


Fig. S1. A typical quantitative ^{1}H NMR spectrum for the measurement of DOF and FZ yields using pyrazine as internal standard compound.

The quantitative result of products is calculated as:

$$m(x)=p(std)\frac{mw(x)}{mw(std)}\frac{nH(std)}{nH(x)}\frac{m(std)}{p(x)}\frac{A(x)}{A(std)}$$

m(x) and m(std) are the masses (weights) in g, MW(x) and MW(std) are the molecular weights in g/mol, P(x) and P(std) are the purities, nH(x) and nH(std) are the number of protons generating the selected signals for integration, A(x) and A(std) are the areas for the selected peaks of the analyte and the internal standard.

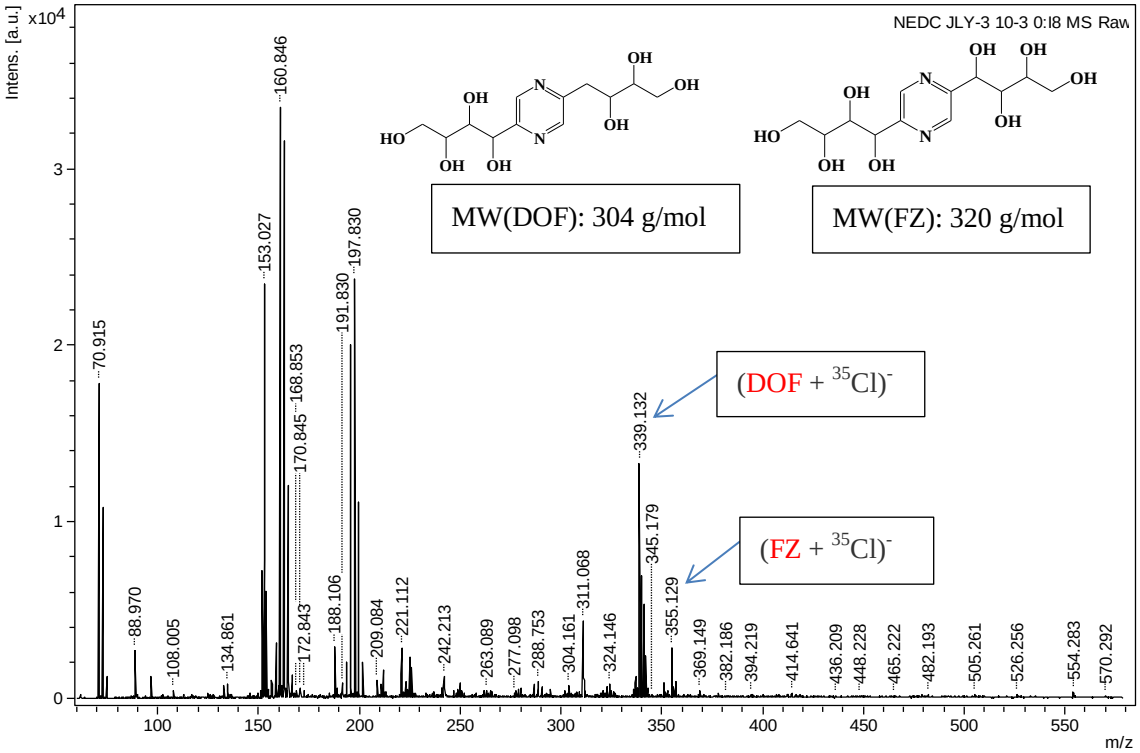
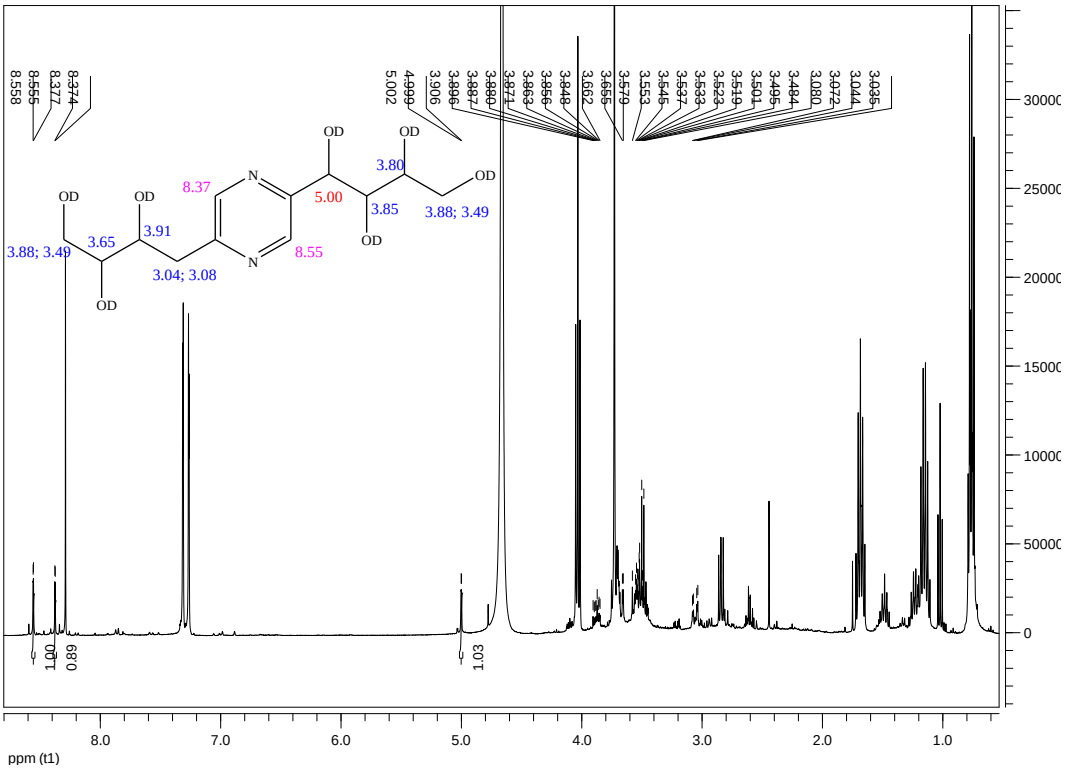


Fig. S2. Negative ion MALDI-TOF mass spectra of DOF and FZ using NEDC as a matrix.



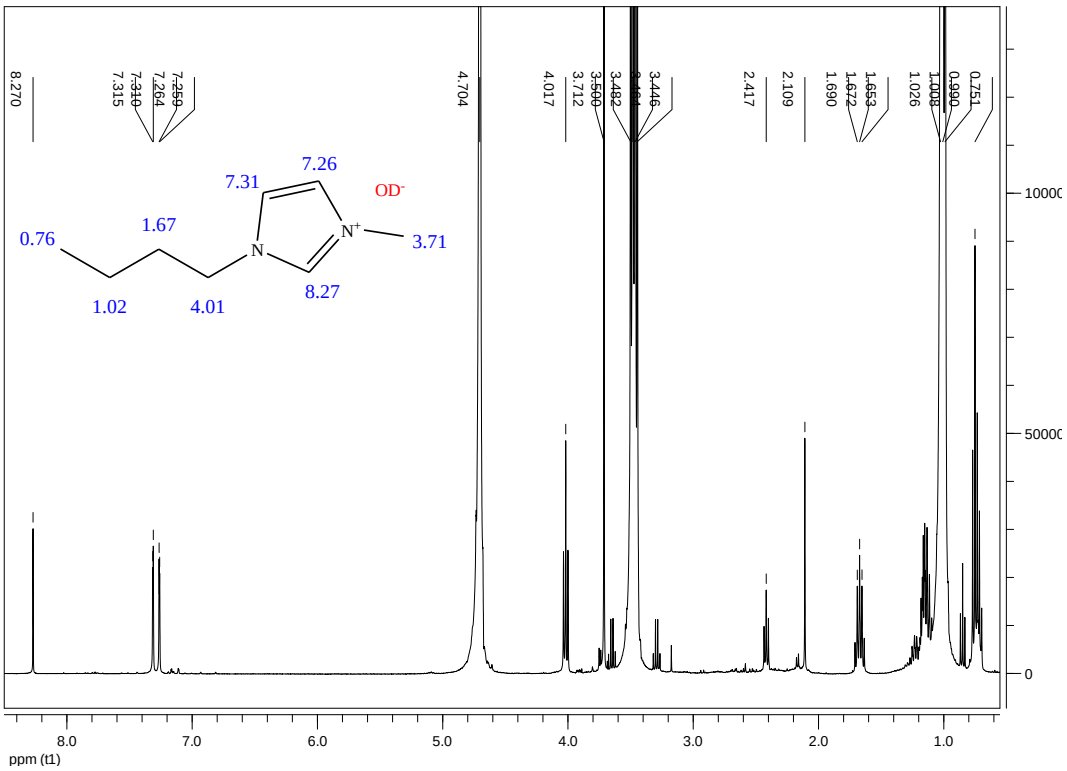


Fig. S3. ^{1}H NMR spectra of products and alcoholic solution of 12% alkaline [BMIM]OH (400.13MHz, D_2O, DSS). The spectra were recorded at ambient

temperature. Chemical shifts are given in ppm. DSS was used as the internal reference. D_2O was used for the deuterium lock.

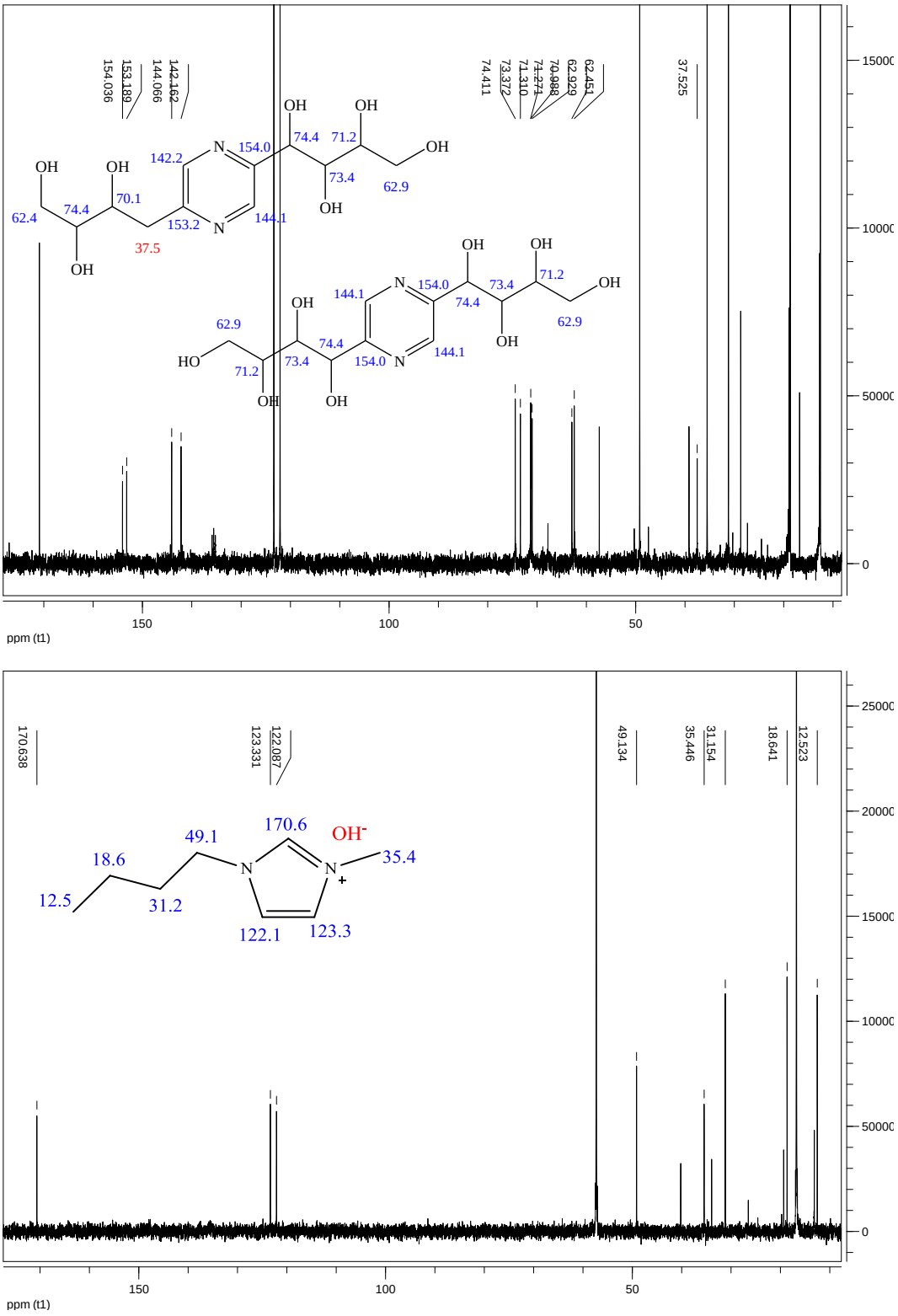
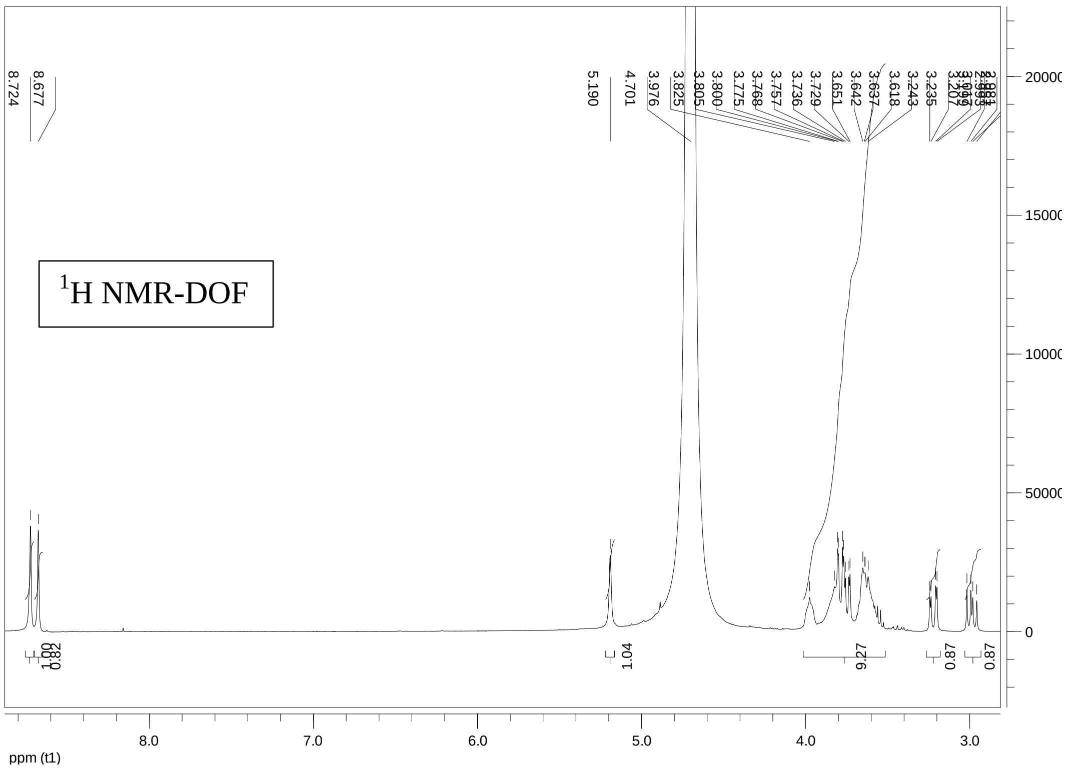
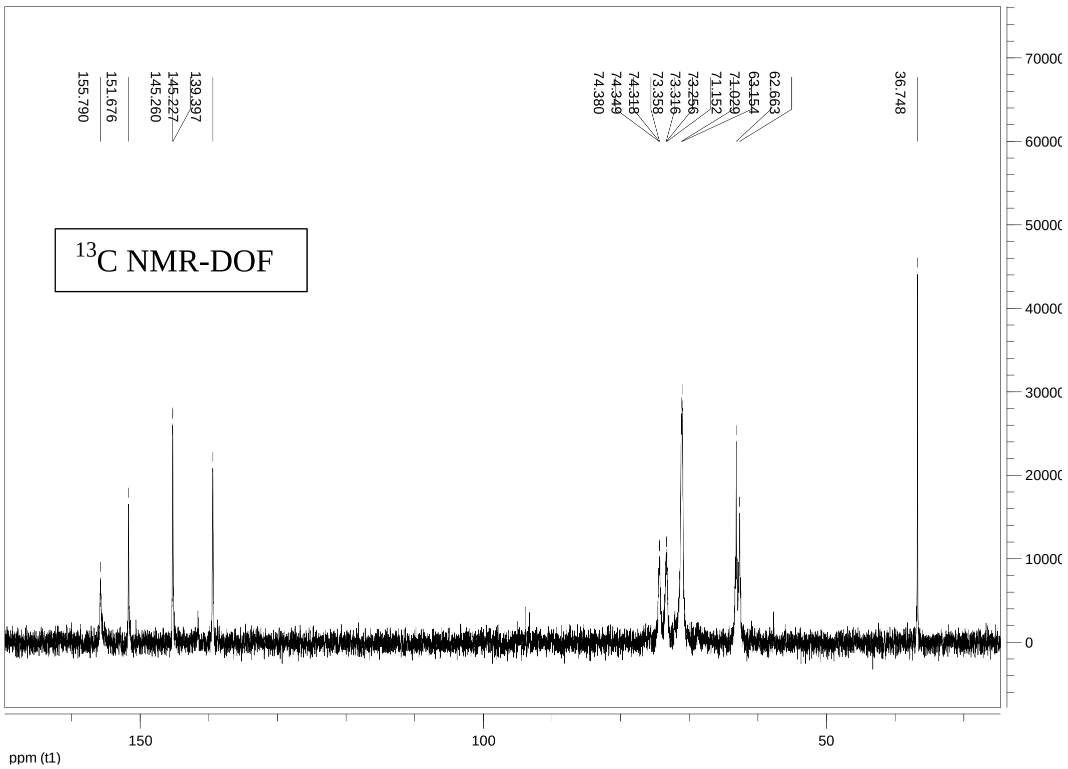


Fig. S4. ^{13}C NMR spectra of products and alcoholic solution of 12% alkaline [BMIM]OH (100.61MHz, D_2O, DSS).


1H NMR-DOF
ppm (t1)
8.0
7.0
6.0
5.0
4.0
3.0


13C NMR-DOF
ppm (t1)
150
100
50

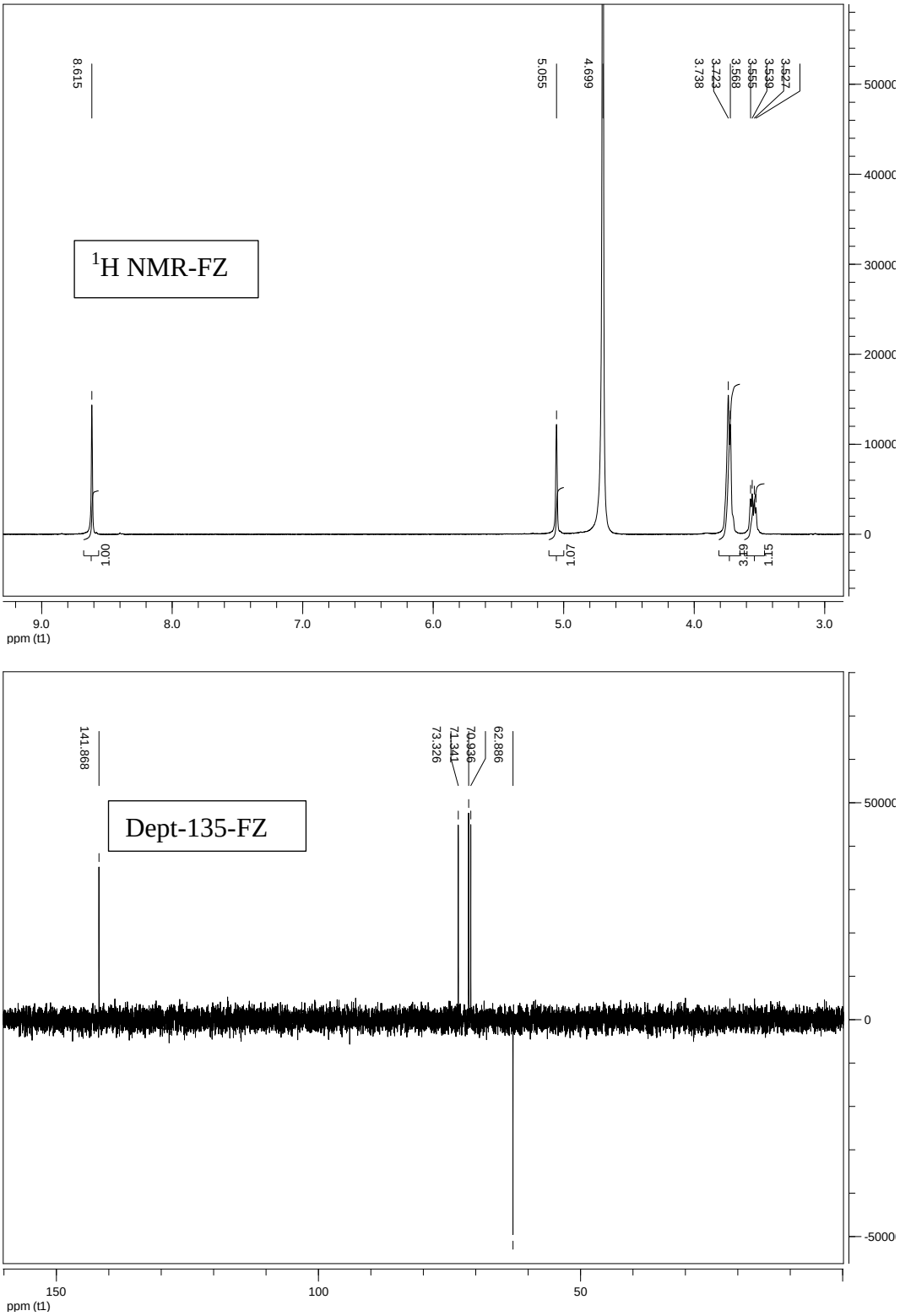


Fig. S5. ^{1}H NMR and ^{13}C NMR spectra of authentic sample (deoxyfructosazine, DOF and fructosazine, FZ).

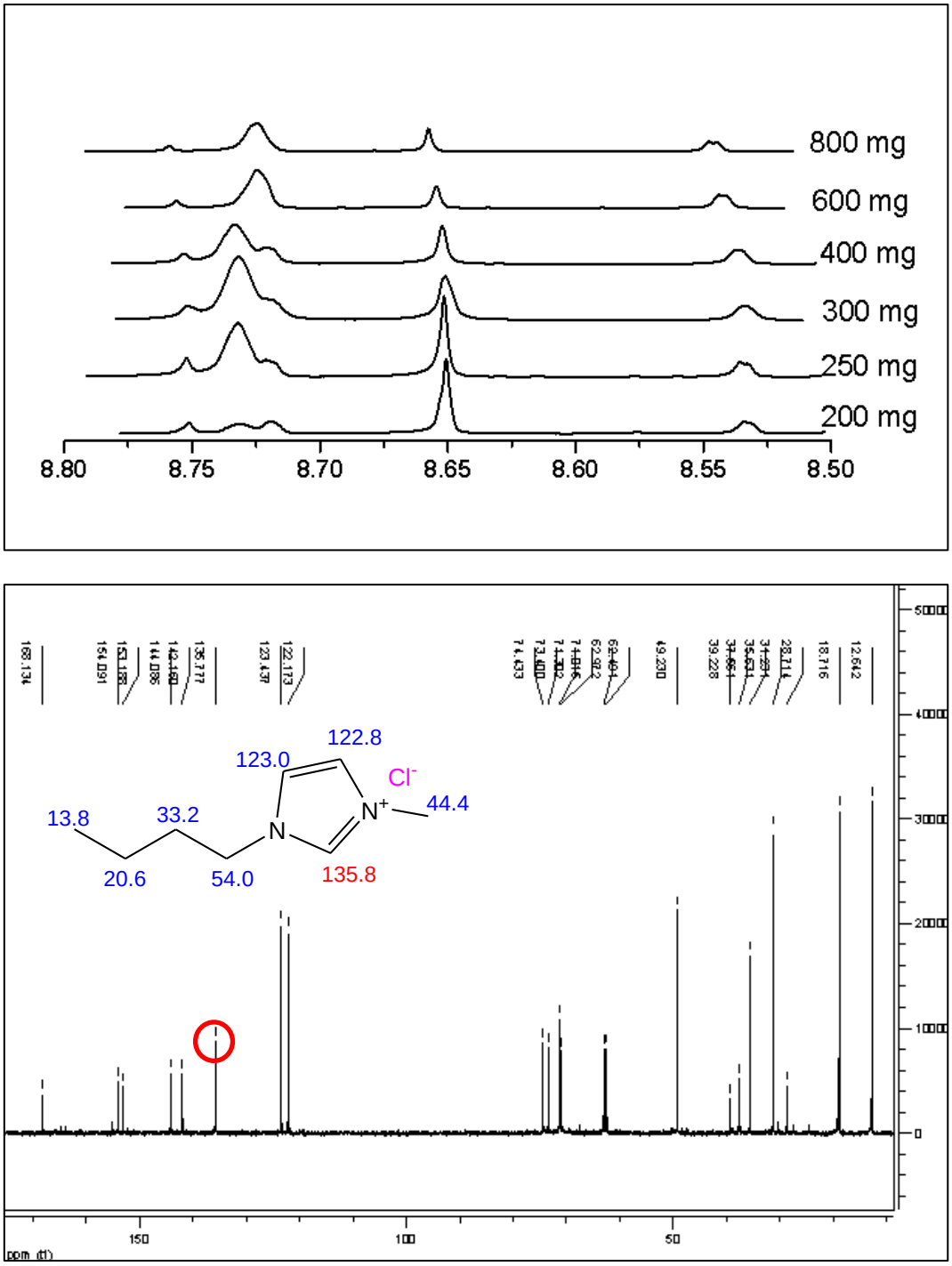


Fig. S6. ^{1}H NMR and ^{13}C NMR spectra of [BMIM]Cl from ion-exchange reaction between hydrochloride and the hydroxyl group of the basic ionic liquid [BMIM]OH.

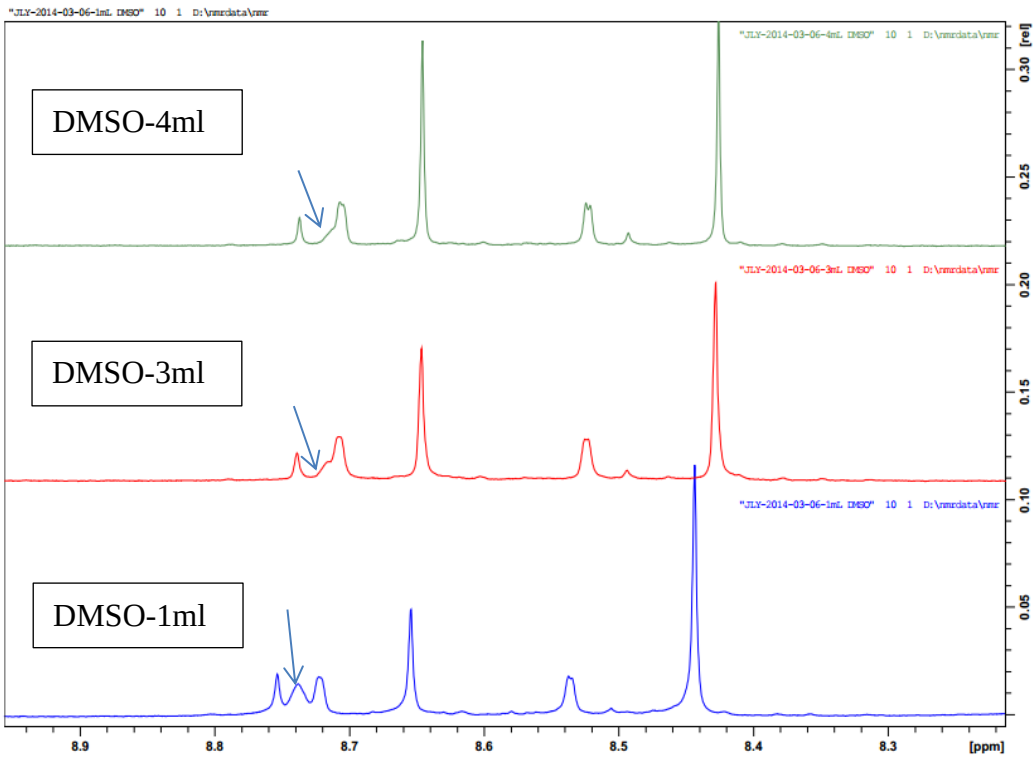


Fig. S7. ^{1}H NMR spectra of products with increasing amounts of DMSO in this reaction system.