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[Supporting Information]

Ultrahigh iodine adsorption in porous organic frameworks

Cuiying Pei,[1] *Teng Ben,*[2*] *Shixian Xu,*[1] *and Shilun Qiu*[1*]

[1] State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, China; [2] Department of Chemistry, Jilin University, Changchun, China.

E-mail: sqiu@jlu.edu.cn; tben@jlu.edu.cn

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1. **Thermal analysis of iodine loaded PAF-1 and iodine loaded JUC-Z2**

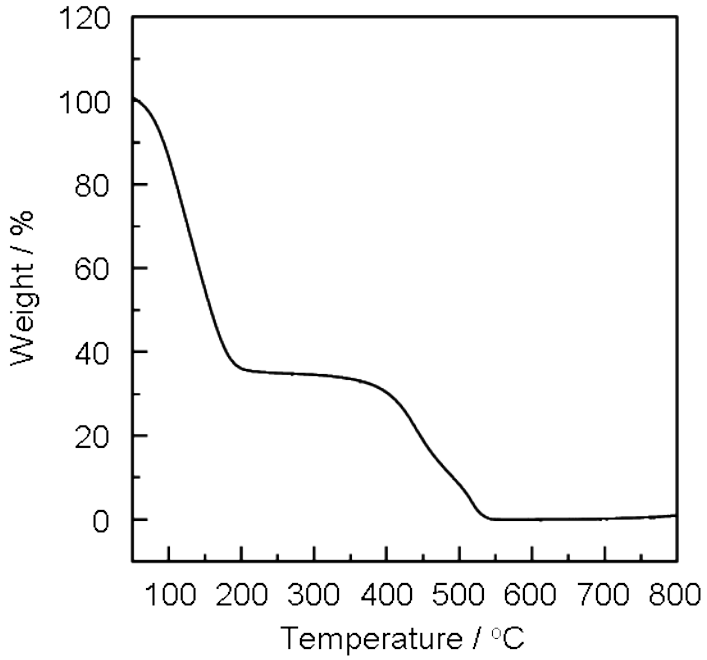

Figure S1. TGA plot of iodine loaded PAF-1 obtained in fixed pressure iodine vapor sorption at air condition with the rate of 10 °C min^{-1}. Weight loss from 50 °C to 200 °C is 64 %.

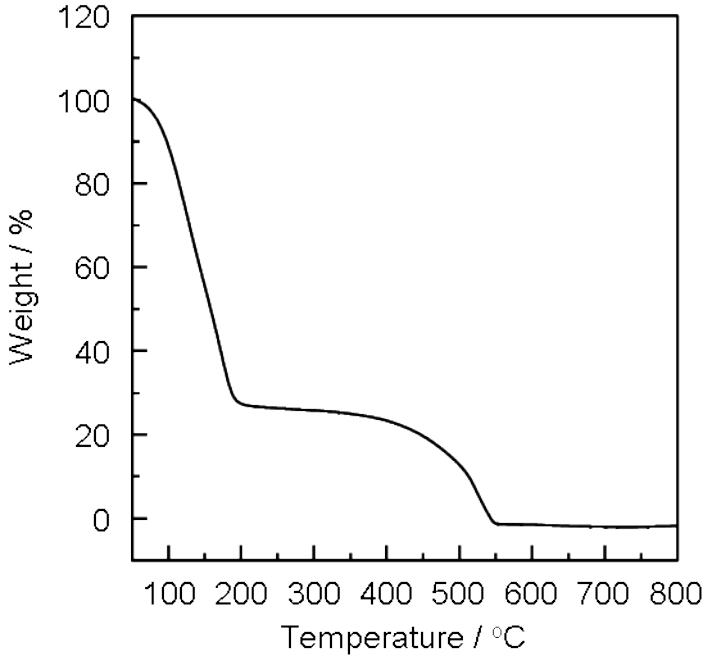

Figure S2. TGA plot of iodine loaded JUC-Z2 obtained in fixed pressure iodine vapor sorption at air condition with the rate of 10 ^{o}C min^{-1}. Weight loss from 50 ^{o}C to 200 ^{o}C is 73 %.

The thermal analyses of iodine loaded PAF-1 and iodine loaded JUC-Z2 obtained by the fixed pressure sorption process after expose 200 min were taken. Since the sorption condition is dry, the weight increase was attributed to iodine uptake. The weight loss from 50 to 200 ^{o}C, iodine uptake, is 64 wt% and 73 wt% of PAF-1 and JUC-Z2 in dry air with the rate of 10 ^{o}C min^{-1} respectively. The weight loss above 400 ^{o}C attributed to adsorbents. Based on the thermal analysis, the iodine sorption capacity is 64 wt% and 73 wt% for PAF-1 and JUC-Z2. Taking into account the loss of iodine in the sample transfer, the result coincides with the result get from the gravimetric sorption (74.2 wt% for PAF-1 and 80.4 wt% for JUC-Z2).

2. Iodine vapor sorption of activated carbon

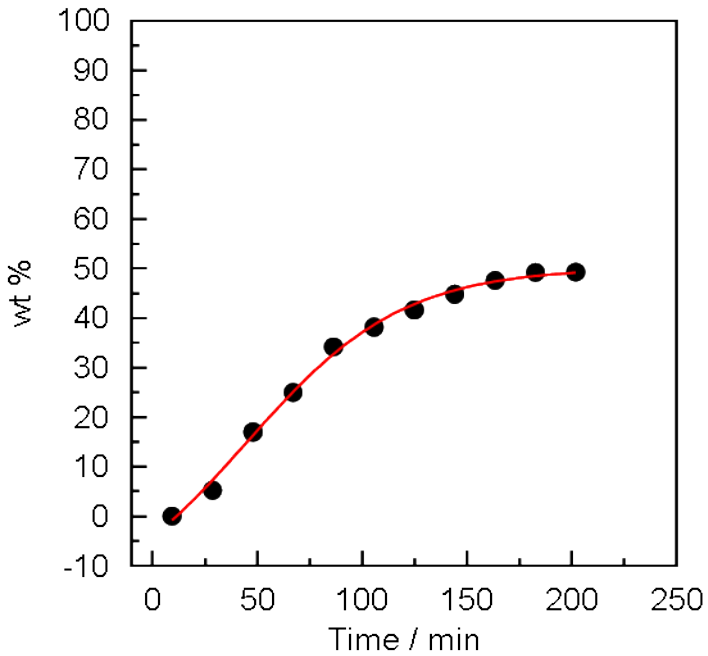

Figure S3. Gravimetric iodine uptake of activated carbon as a function of time at 333 K.

3. Bind of iodine with PAF-1 and JUC-Z2 in n-hexane

3-1. working line of iodine/n-hexane solution

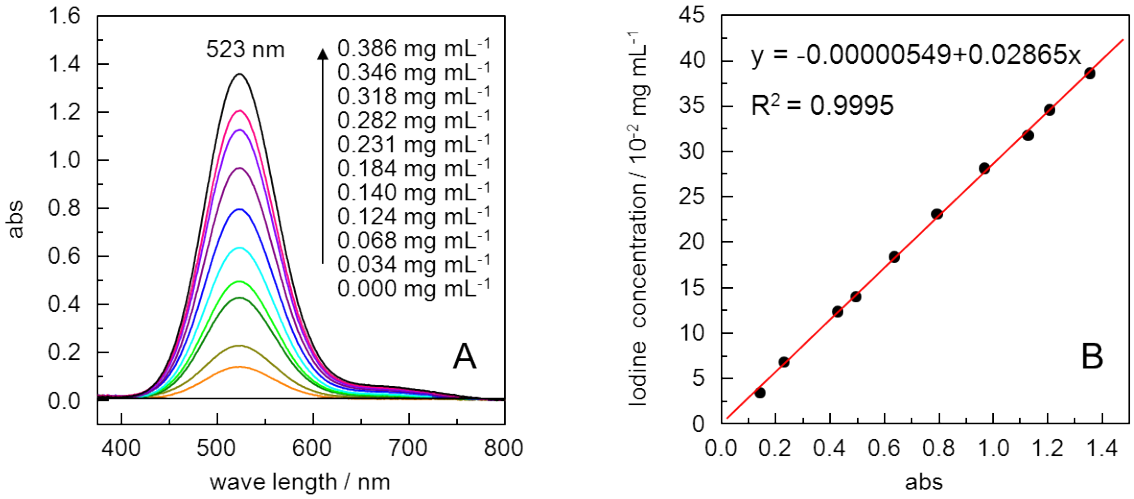

Figure S4. (A) UV-Vis of iodine in various concentrations in dry n-hexane; (B) Linear curve of UV-Vis abs at 523 nm in various iodine concentrations in n-hexane

3-2. Bind of iodine with PAF-1 in n-hexane

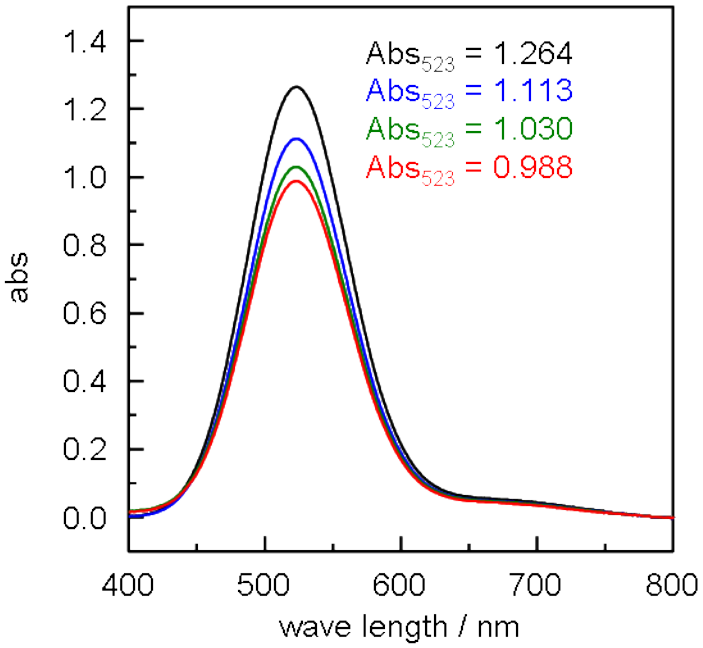

Figure S5. UV-Vis curve of PAF-1 (30 mg) in n-hexane adsorbed iodine for 20 h (red), 10 h (olive), 6 h (blue), 3 h (purple) and iodine in n-hexane (black) at R.T. for 10 h

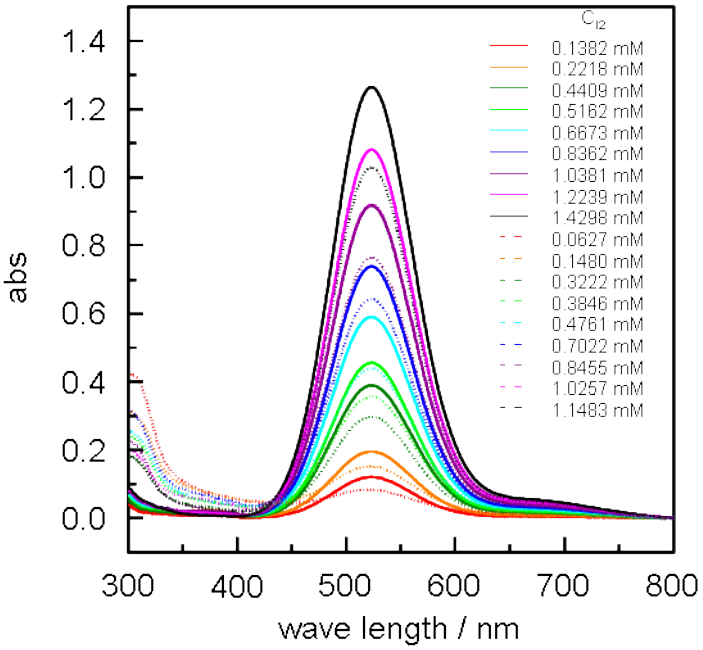

Figure S6. UV-Visible spectra recorded in absorbance mode of iodine/n-hexane solution with PAF-1 stirring for 10 h at R. T.

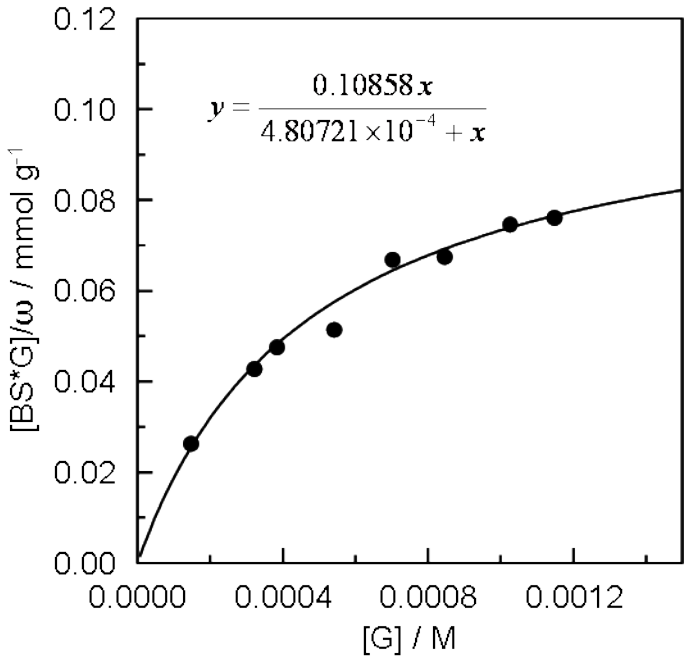

Figure S7. Binding of host solid PAF-1 with iodine in n-hexane

3-3. Bind of iodine with JUC-Z2 in n-hexane

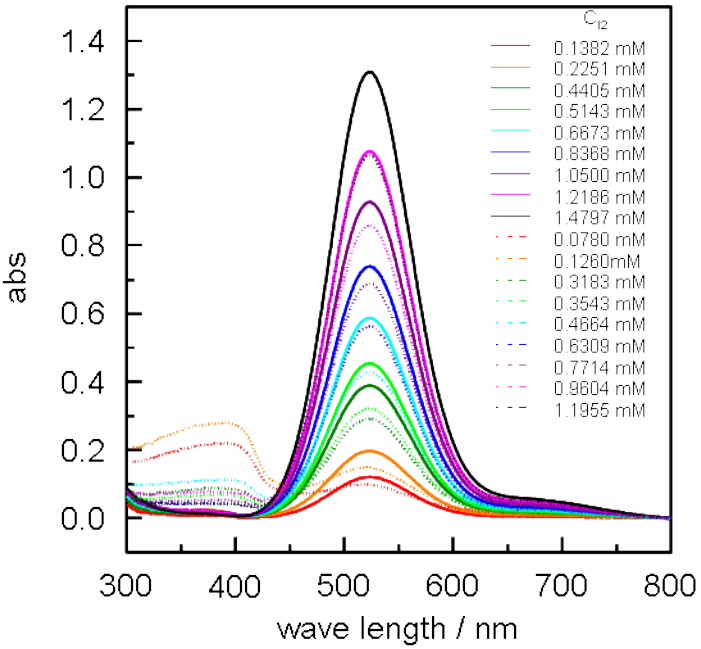

Figure S8. UV-Visible spectra recorded in absorbance mode of iodine/n-hexane solution with JUC-Z2 stirring for 10 h at R. T.

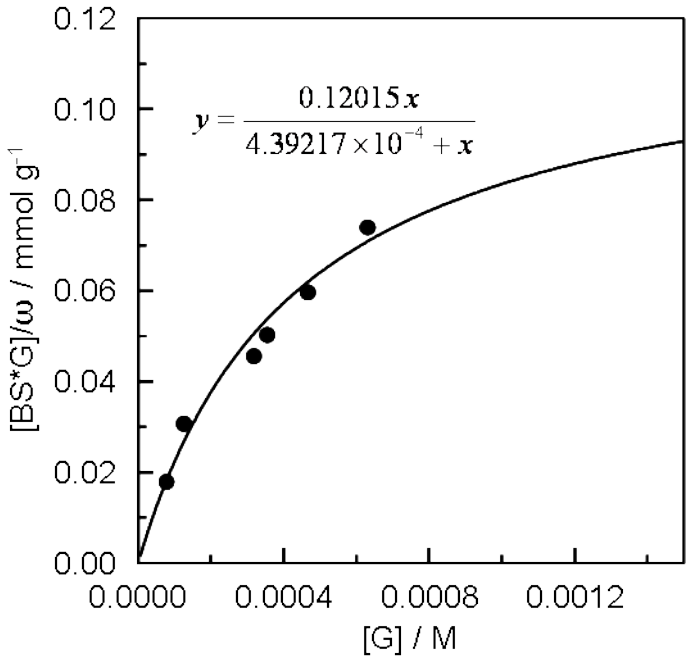

Figure S9. Binding of host solid JUC-Z2 with iodine in n-hexane

4. Bind of iodine with PAF-1 and JUC-Z2 in chloroform

4-1. Bind of iodine with PAF-1 in chloroform

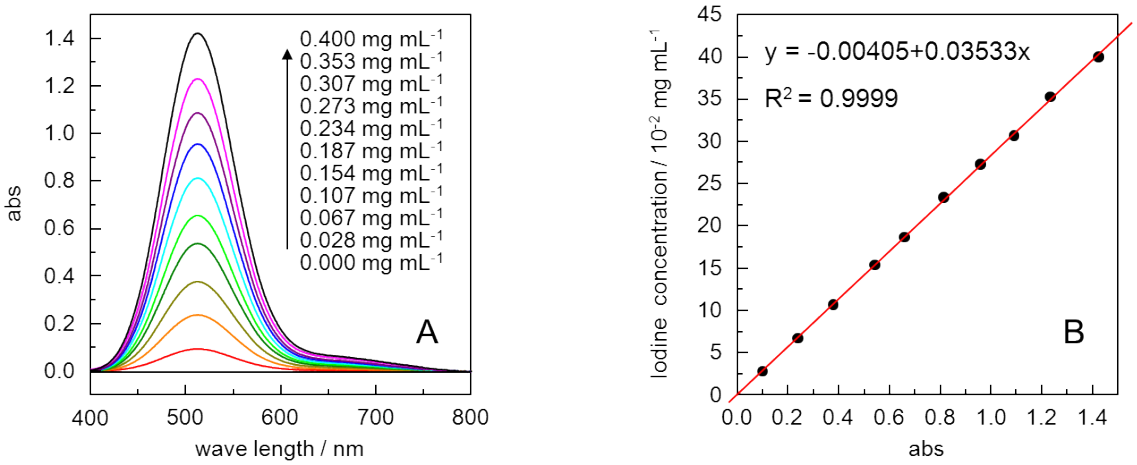

Figure S10. (A) UV-Vis of iodine in various concentrations in dry chloroform; (B) Linear curve of UV-Vis abs at 512 nm in various iodine concentrations in chloroform

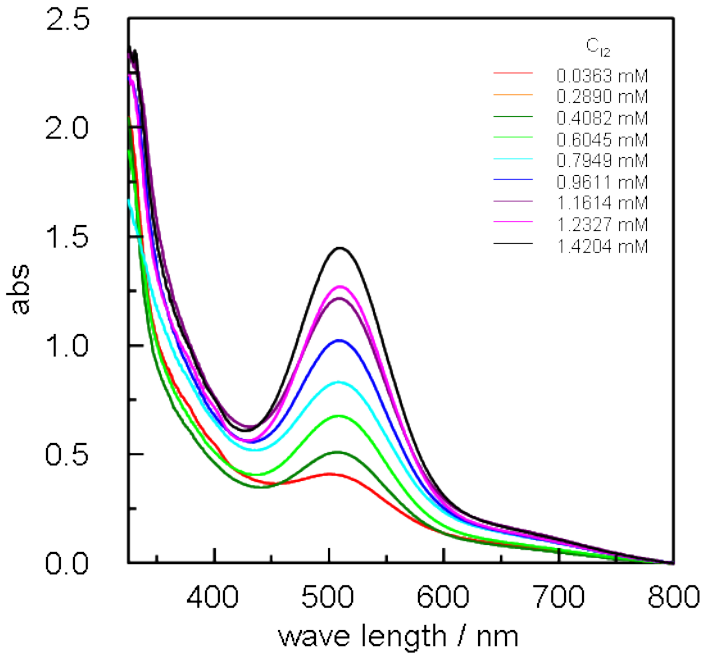

Figure S11. UV-Visible spectra recorded in absorbance mode of iodine/chloroform solution with PAF-1 stirring for 10 h at R. T.

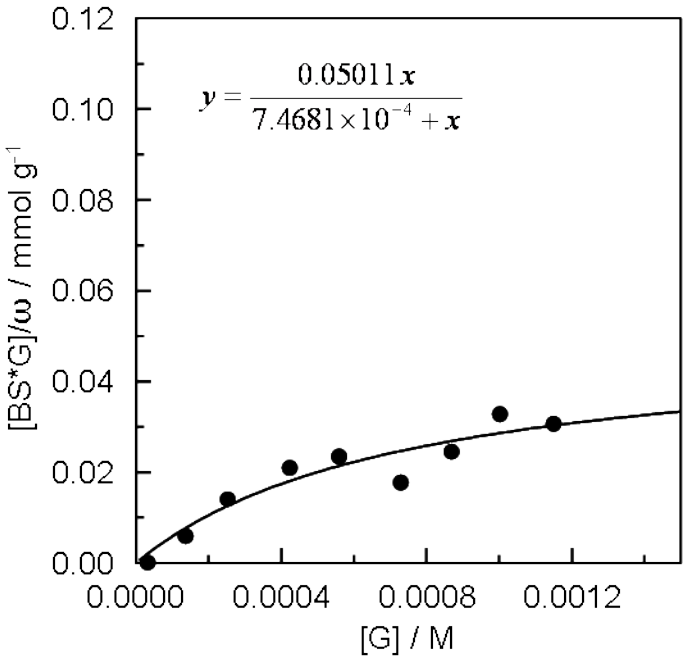

Figure S12. Binding of host solid PAF-1 with iodine in chloroform

4-2. Bind of iodine with JUC-Z2 in chloroform

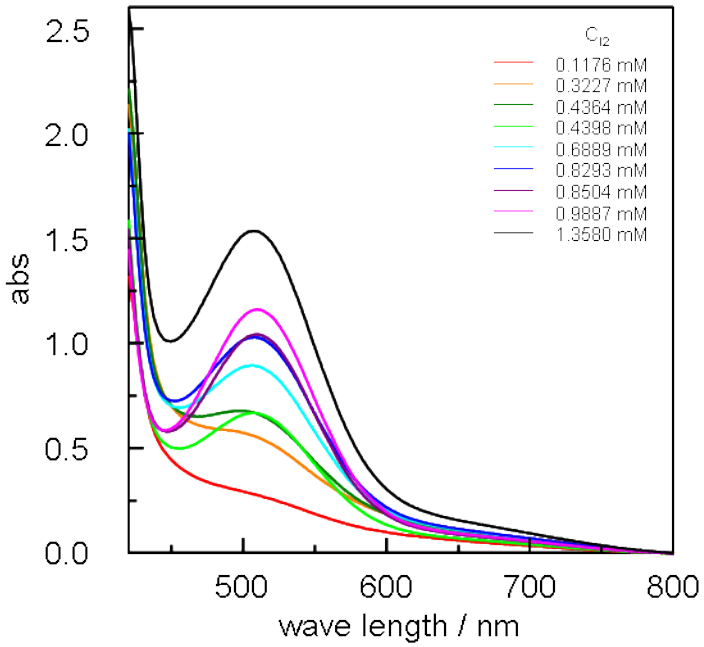

Figure S13. UV-Visible spectra recorded in absorbance mode of iodine/chloroform solution (A) and iodine/chloroform solution with JUC-Z2 stirring for 10 h at R. T. (B)

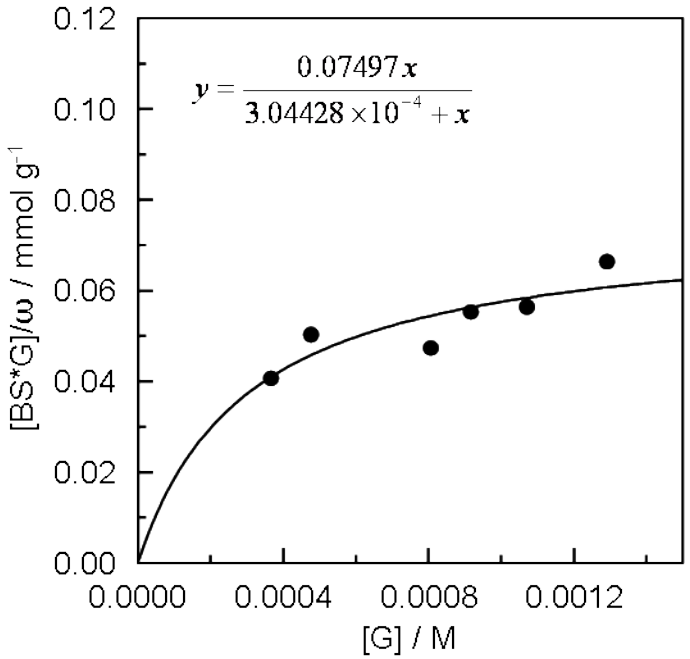

Figure S14. Binding of host solid JUC-Z2 with iodine in chloroform

5. Bind of iodine with PAF-1 and JUC-Z2 in methanol

5-1. Bind of iodine with PAF-1 in methanol

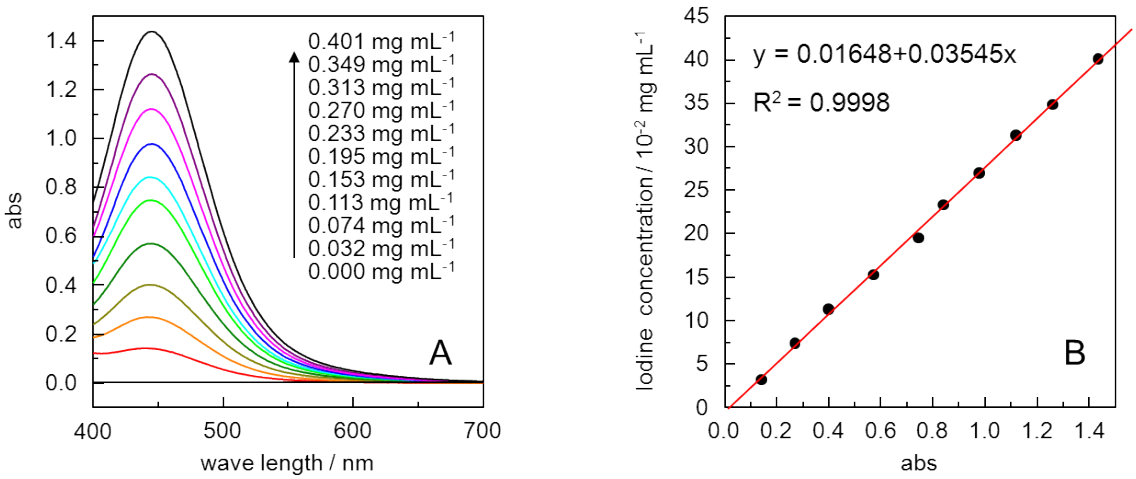

Figure S15. (A) UV-Vis of iodine in various concentrations in dry methanol; (B) Linear curve of UV-Vis abs at 442 nm in various iodine concentrations in methanol

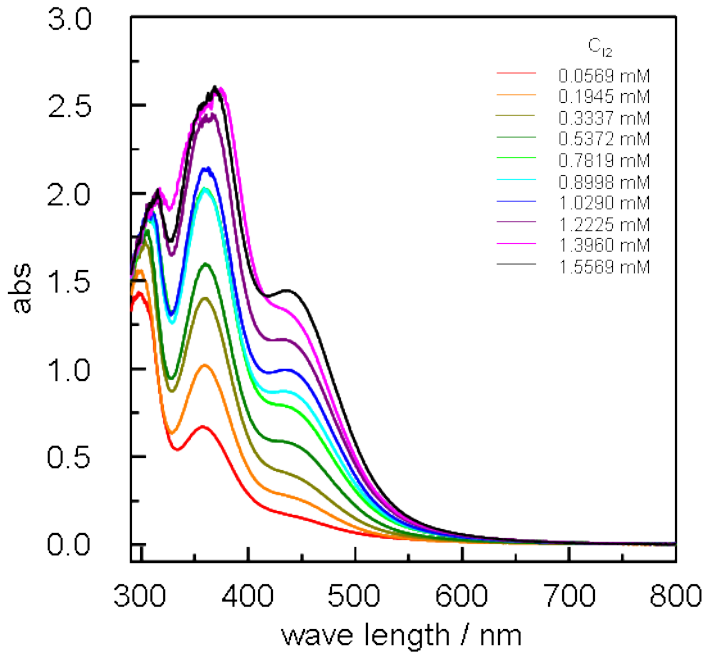

Figure S16. UV-Visible spectra recorded in absorbance mode of iodine/methanol solution with PAF-1 stirring for 10 h at R. T.

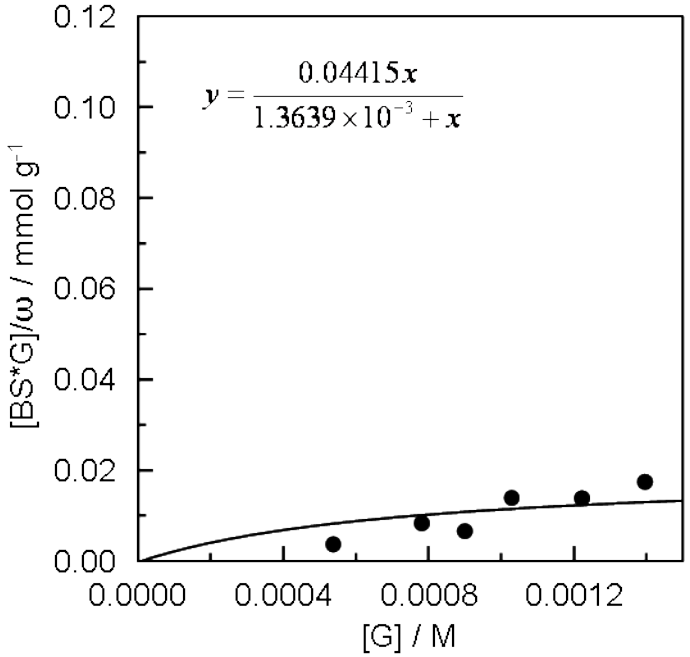

Figure S17. Binding of host solid PAF-1 with iodine in methanol

5-2. Bind of iodine with JUC-Z2 in methanol

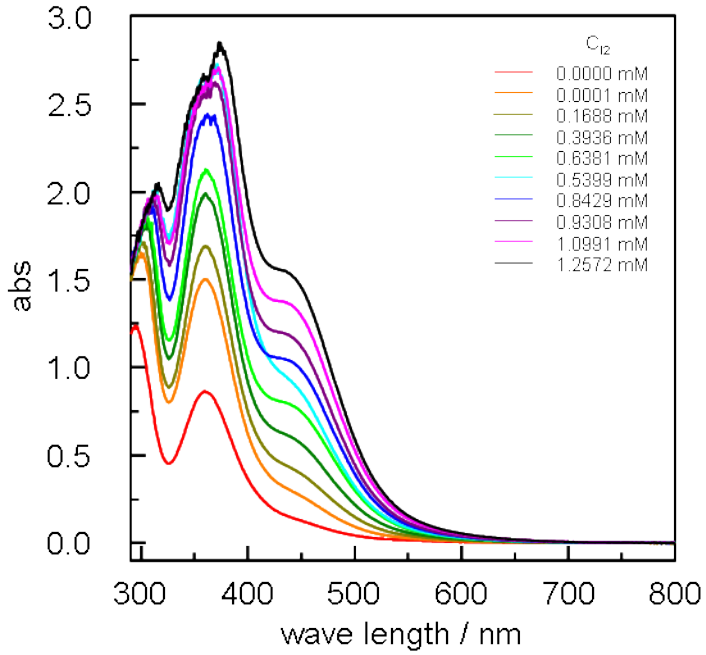

Figure S18. UV-Visible spectra recorded in absorbance mode of iodine/methanol solution with JUC-Z2 stirring for 10 h at R. T.

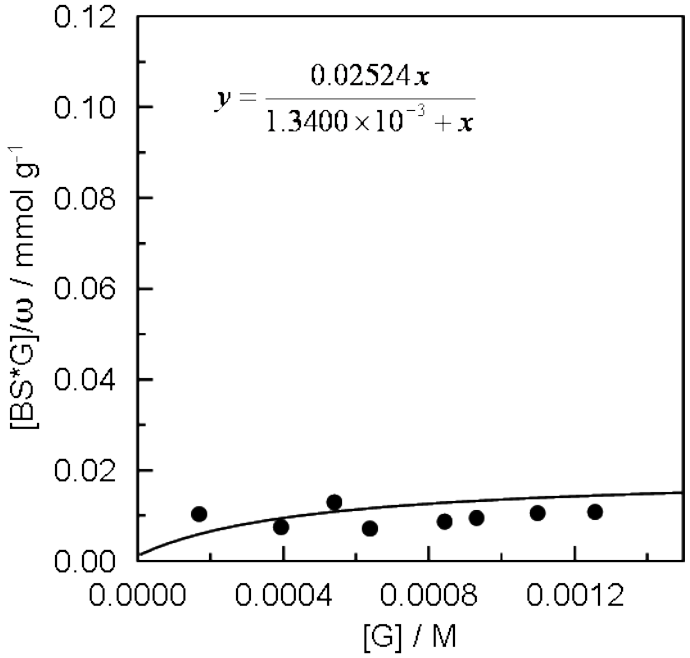

Figure S19. Binding of host solid JUC-Z2 with iodine in methanol

6. Bind of chloroform with PAF-1 and JUC-Z2 in n-hexane

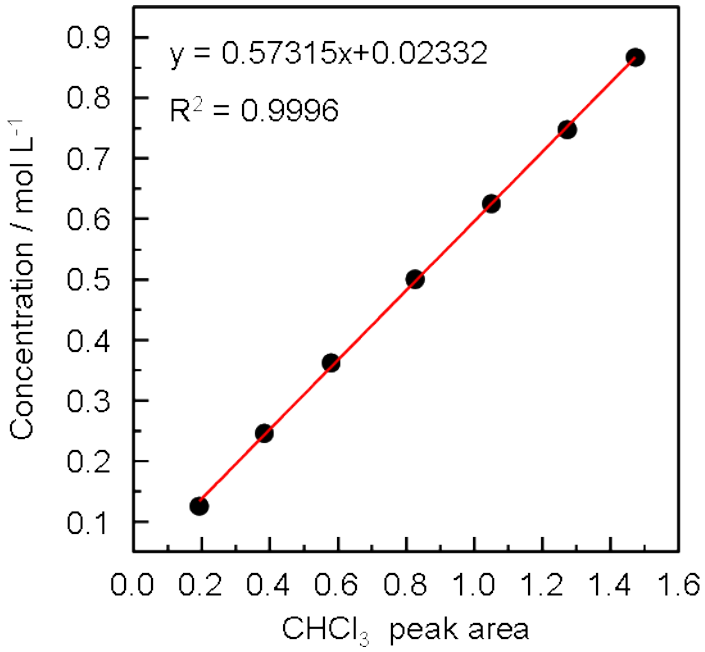

Figure S20. Linear curve of chloroform/n-hexane peak area in GC measurement with different concentration.

7. Bind of methanol with PAF-1 and JUC-Z2 in n-hexane

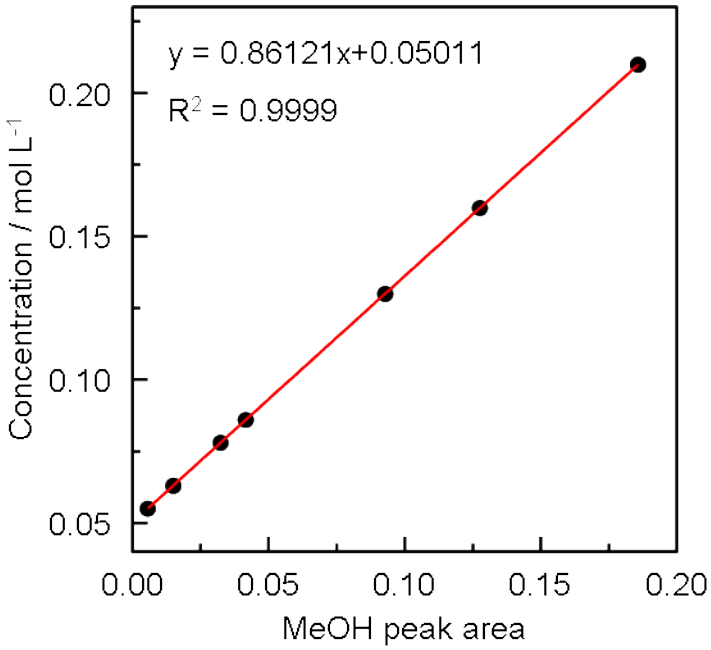

Figure S21. Linear curve of methanol/n-hexane peak area in GC measurement with different concentration.