

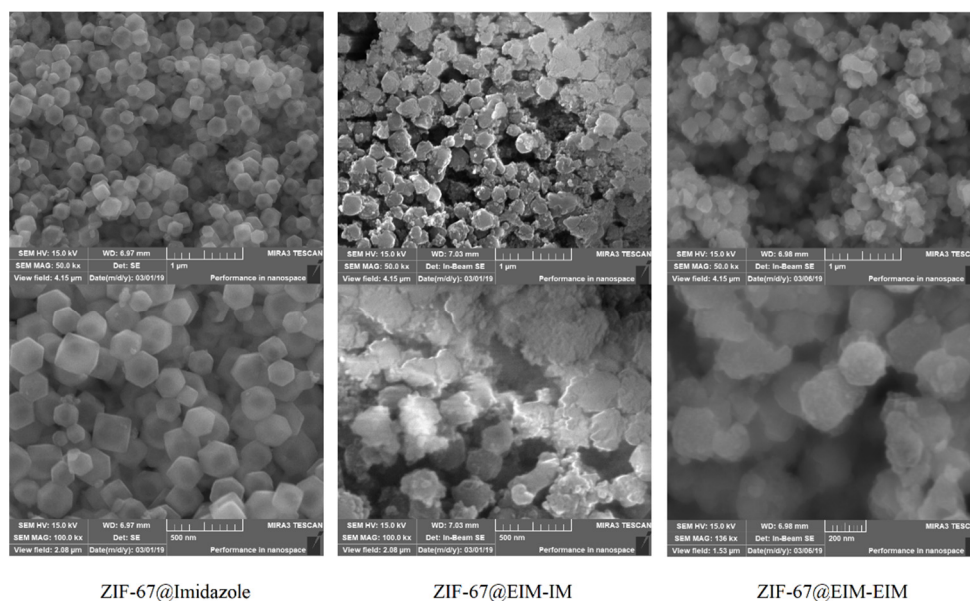
Supplementary Material

# Solid-Phase Extraction of Aristolochic Acid I from Natural Plant Using Dual Ionic Liquid-Immobilized ZIF-67 as Sorbent

Pei Chen, Xiaoman Li, Xuemin Yan and Minglei Tian \*

## 1. Characterization

### 1.1. SEM of Other Sorbents

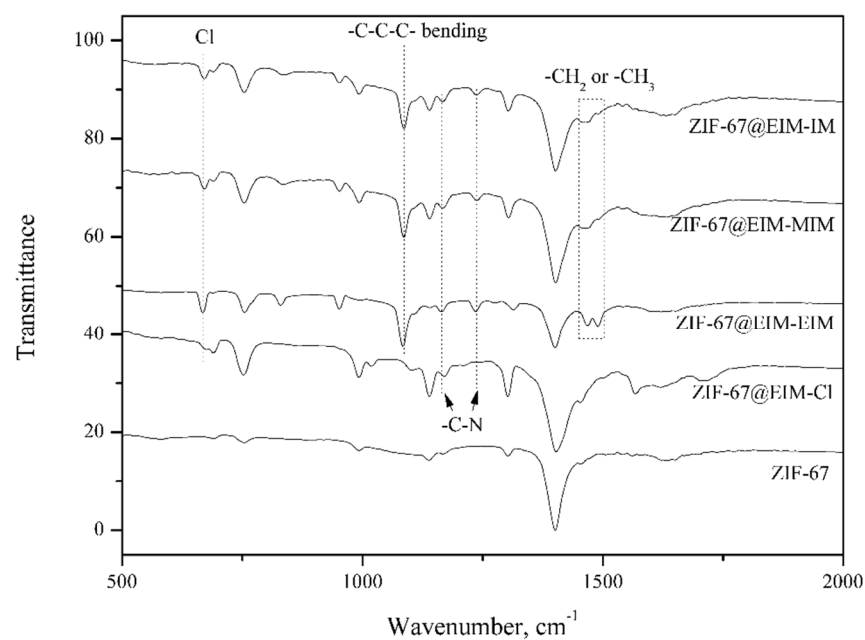


**Figure S1.** SEM of ZIF-67@Imidazole, ZIF-67@EIM-IM and ZIF-67@EIM-EIM.

### 1.2. FT-IR

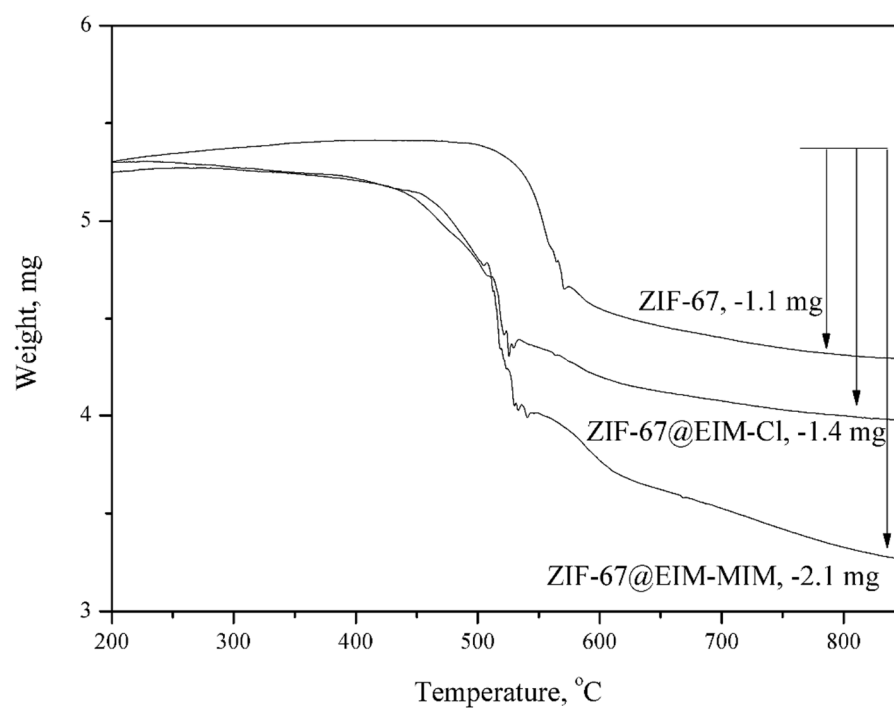
The sorbents were fully dried in a 70 °C oven for 12h. Then the samples were prepared by mixing 1.0 mg of sorbent and 100.0 mg of ground KBr and pressing it 2 min to form a pellet.

The results were performed in software Nicolet Omnic 8.2 and OriginPro 8.0.



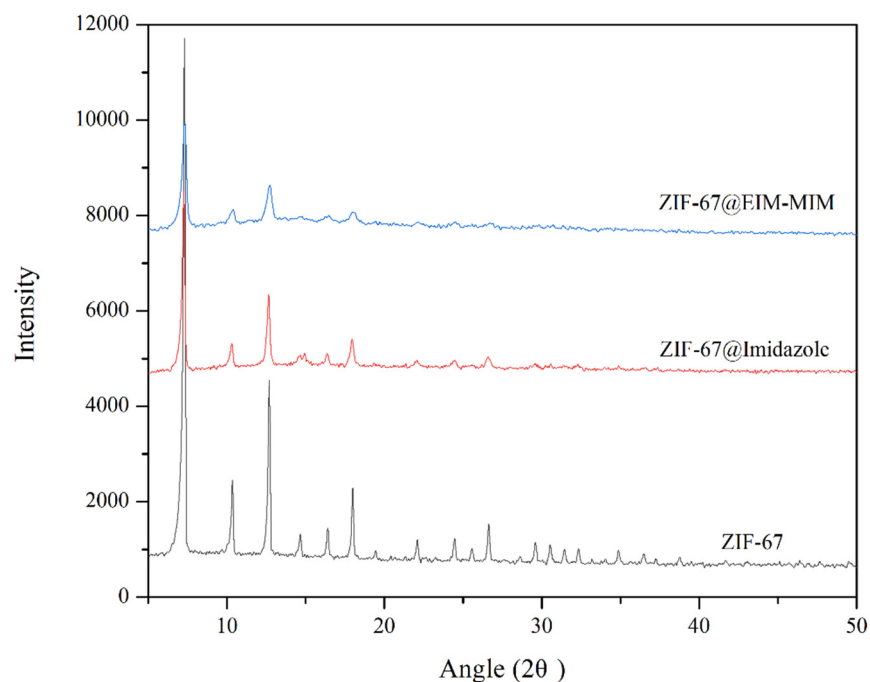
**Figure S2.** FT-IR of ZIF-67, ZIF-67@EIM-Cl, ZIF-67@EIM-IM, ZIF-67@EIM-MIM and ZIF-67@EIM-EIM.

### 1.3. TGA



**Figure S3.** TGA analysis of ZIF-67, ZIF-67@EIM-Cl and ZIF-67@EIM-MIM.

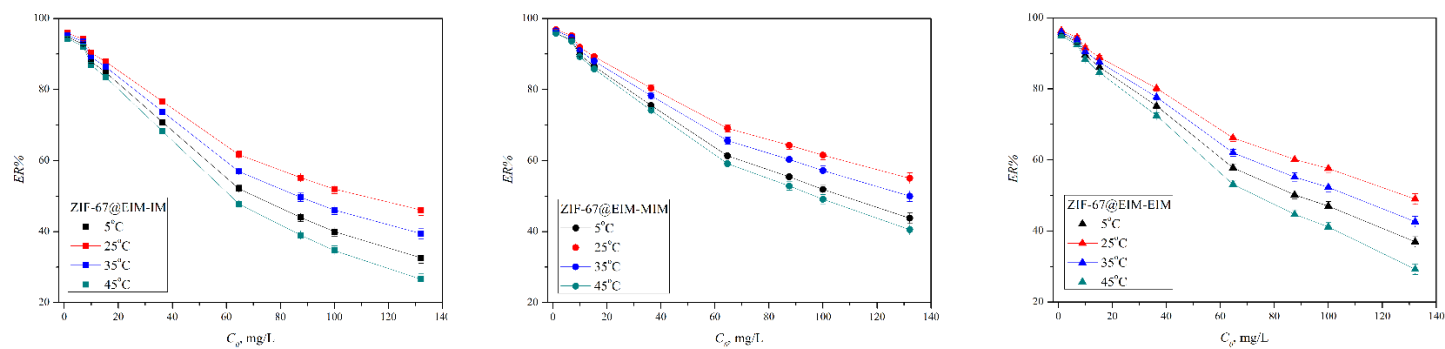
#### 1.4. XRD



**Figure S4.** XRD spectrograms of ZIF-67, ZIF-67@imidazole and ZIF-67@EIM-MIM.

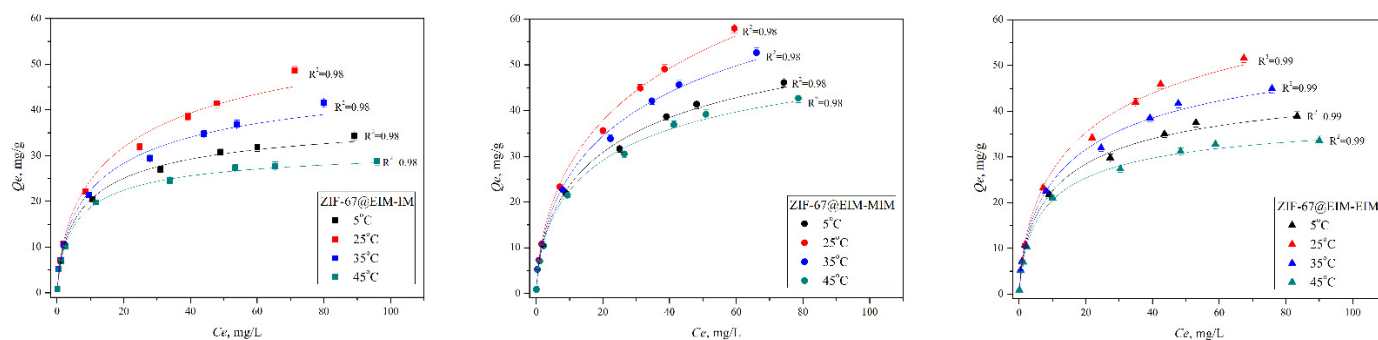
## 2. Adsorption Isothermal and Kinetics Studies on the Three ZIF-67@EIM-ILs

### 2.1. The Relationship between $C_0$ and Adsorption Efficiency $ER(\%)$



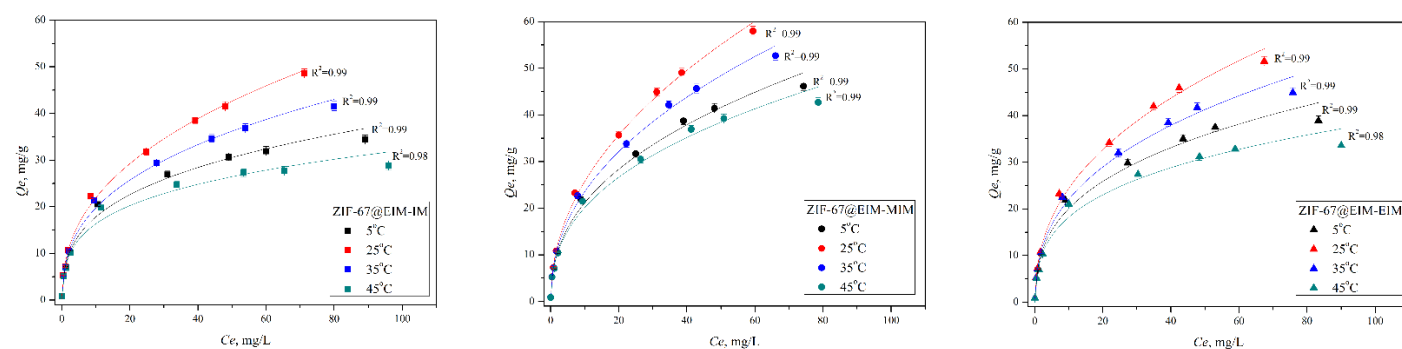
**Figure S5.** The relationships between initial concentration ( $C_0$ ) and adsorption efficiency ( $ER(\%)$ ) of AAI on three sorbents at 5, 25, 35 and 45 °C.

## 2.2. Langmuir Model



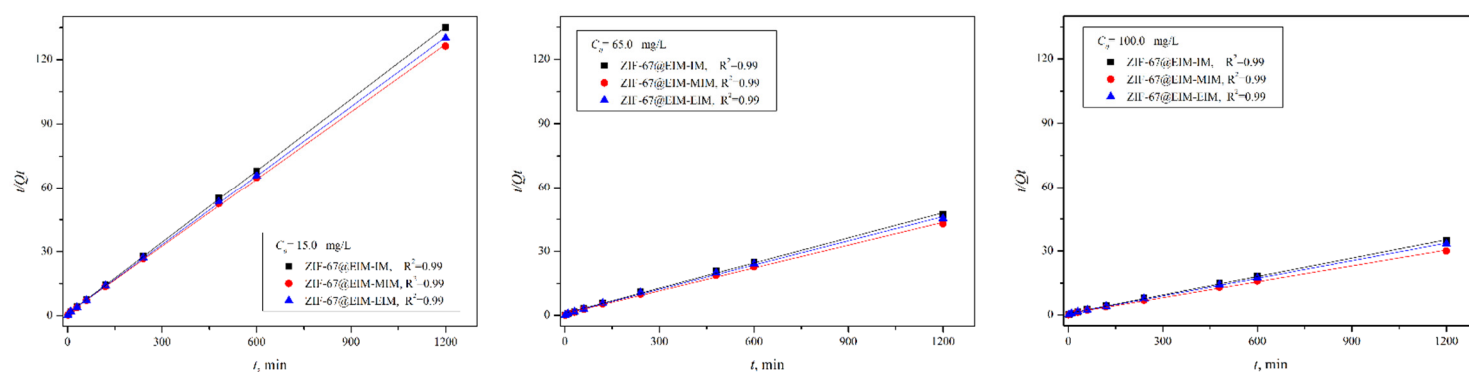
**Figure S6.** The Langmuir model for AAI adsorption onto ZIF-67@EIM-IM, ZIF-67@EIM-MIM and ZIF-67@EIM-EIM at 5, 25, 35 and 45 °C .

## 2.3. Freundlich Model



**Figure S7.** The Freundlich model for AAI adsorption onto ZIF-67@EIM-IM, ZIF-67@EIM-MIM and ZIF-67@EIM-EIM at 5, 25, 35 and 45 °C.

## 2.4. Pseudo-Second-Order Model



**Figure 8.** The adsorption of AAI onto three dual IL-immobilized ZIF-67 sorbents at 25 °C with the pseudo-second-order model.