Supplementary Materials

Figure numbers: 5

Table numbers: 2

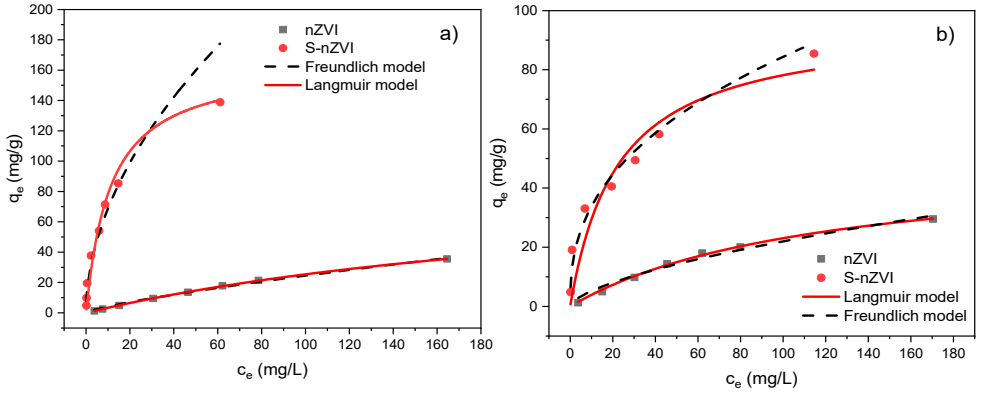

Figure S1 Adsorption isotherms of a) As(III) and b) As(V) on nZVI and S-nZVI

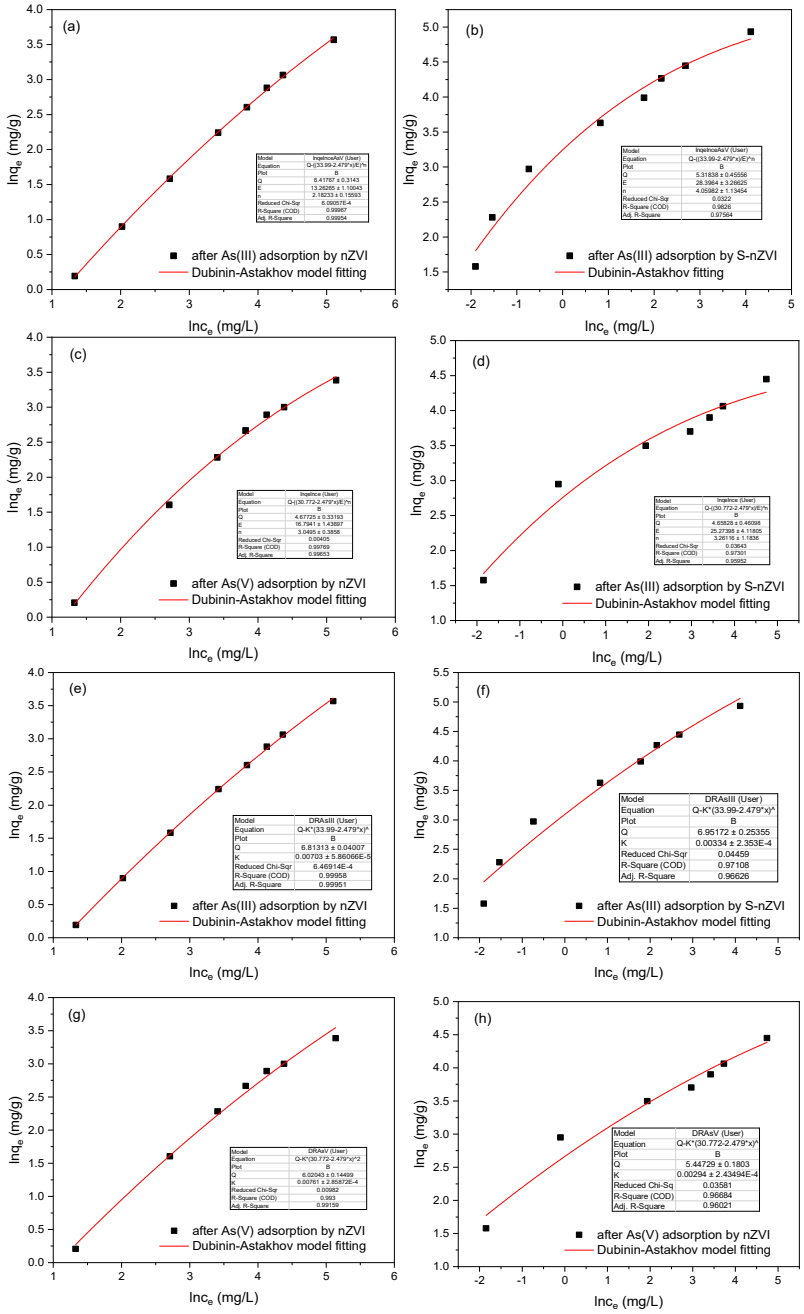

Figure S2 The Dubinin-Astakhov model fitting results of As(III)/As(V) adsorption isotherms on nZVI and S-nZVI

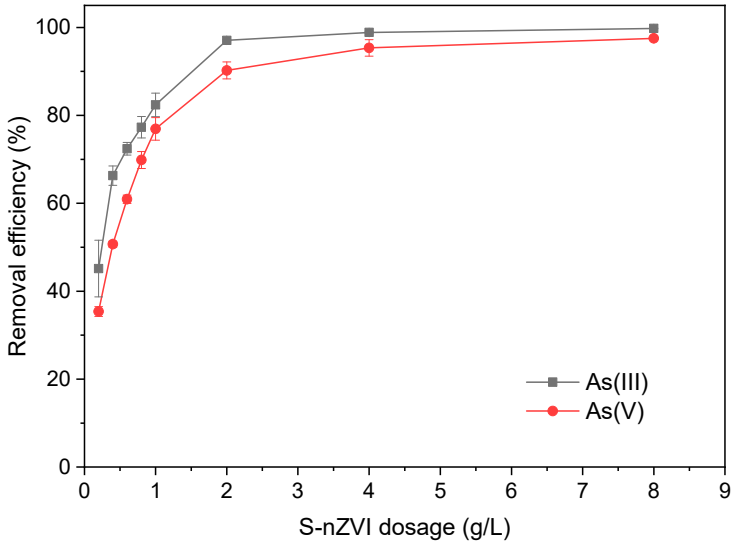

Figure S3 Effect of S-nZVI dosage on the As(III) and As(V) removal

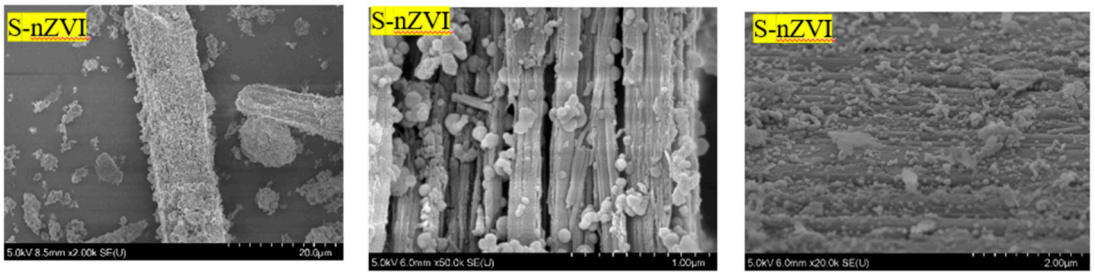

Figure S4 SEM images of S-nZVI.

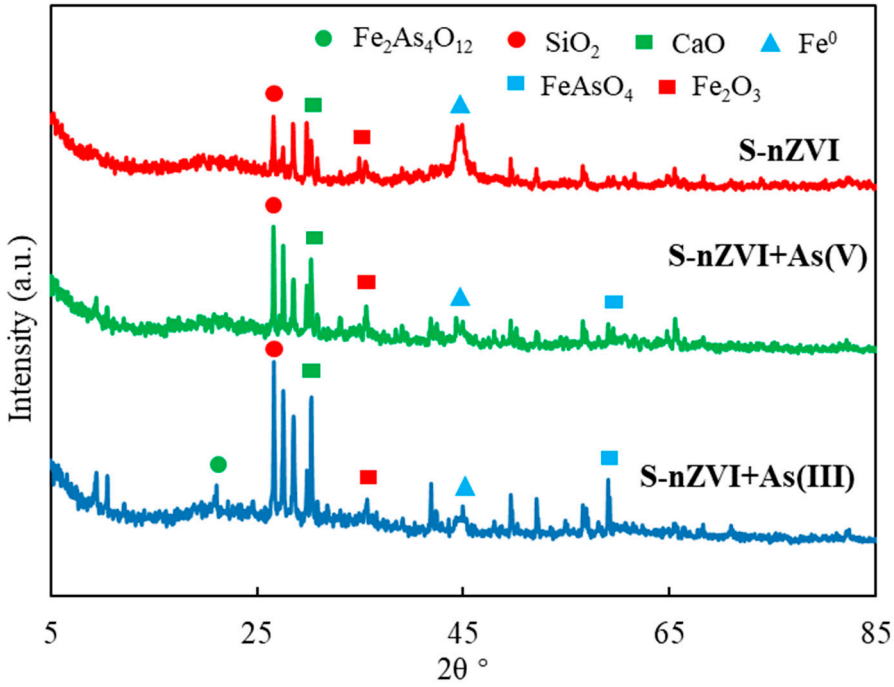

Figure S5 XRD patters of S-nZVI before and after adsorption of As(III) and As(V)

Table S1 Comparison of the maximum As(III)/As(V) adsorption capacity by adsorbents reported in literatures.

Materials	pH	As(III) (mg/g)	As(V) (mg/g)	Dosage (g/L)	Reference
Zeolite-nZVI	7.0	11.52	-	0-30	(Li et al., 2018)
Iron oxides	5	6.77	7.23	0.5	(Wang et al., 2013)
GB-nZVI	7.0	181.5	-	0.1-0.4	(Liu et al., 2020)
Activated char and nZVI	6.5	18.2	12.0	0.1-3.0	(Zhu et al., 2009)
fuller's earth-nZVI	7/3	50.08	91.42	1	(Yadav et al., 2016)
Mn-nZVI	7.0	59.90	45.50	1	(Bhowmick et al., 2014)
S-nZVI	7.0	230.29	155.74	0.2-8	This research

Table S2 Fitting results of As(III) and As(V) adsorption on nZVI and S-nZVI by Dubinin-Astakhov model (a)-(d) and Dubinin- Radushkevich model.

	Dubinin-Astakhov model				**Dubinin- Radushkevich model**		
	lnq_{mD-A}	**E_{D-A}**	**n_{D-A}**	**R^2**	**lnq_{mD-R}**	**K_{D-R}**	**R^2**
	As(III)						
nZVI	6.42	13.26	2.18	0.999	6.81	0.007	0.999
S-nZVI	5.32	28.4	4.06	0.982	6.95	0.003	0.971
	As(V)						
nZVI	4.68	16.79	3.05	0.998	6.02	0.008	0.993
S-nZVI	4.66	25.27	3.26	0.973	5.45	0.003	0.967