

## **Electronic Supplementary Information (ESI)**

### ***Aloe vera* mucilage as a sustainable biopolymer flocculant for efficient arsenate anion removal from water**

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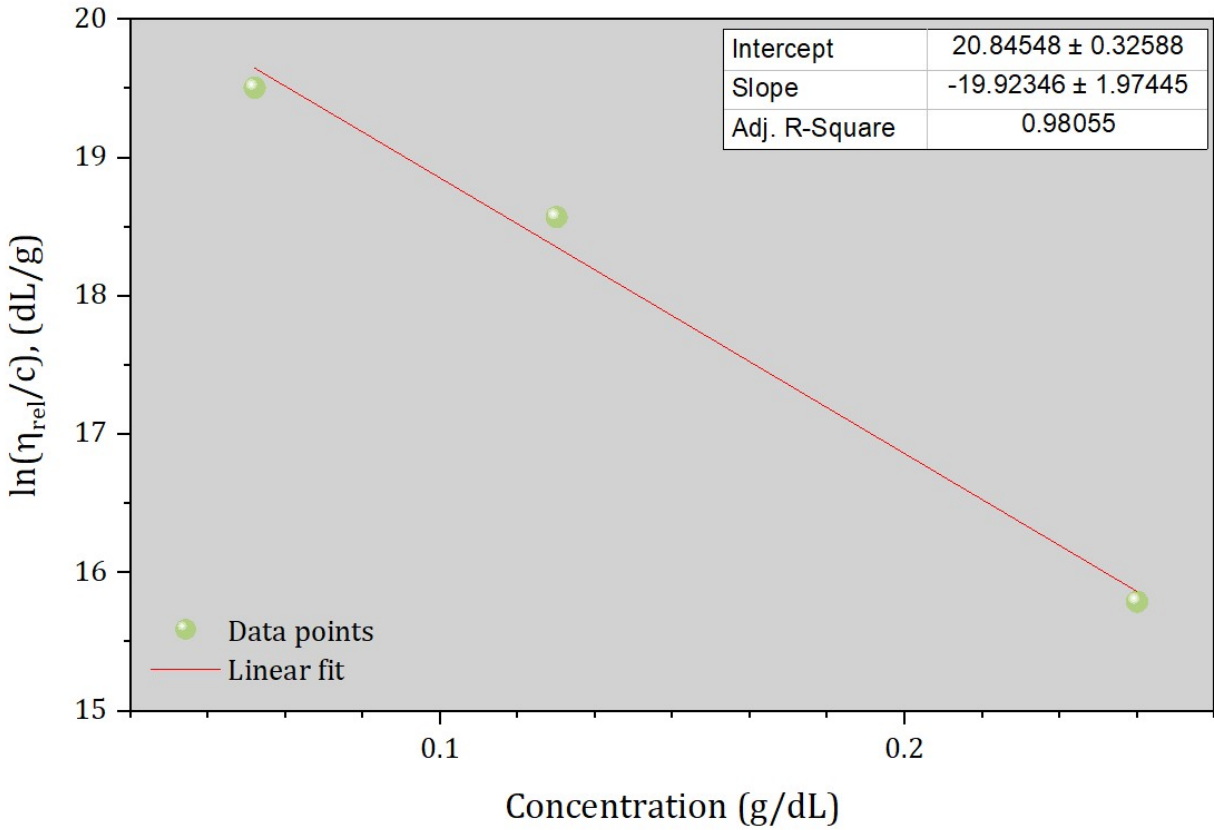


Figure S1: Kraemer's plot for determination of intrinsic viscosity of AVM.

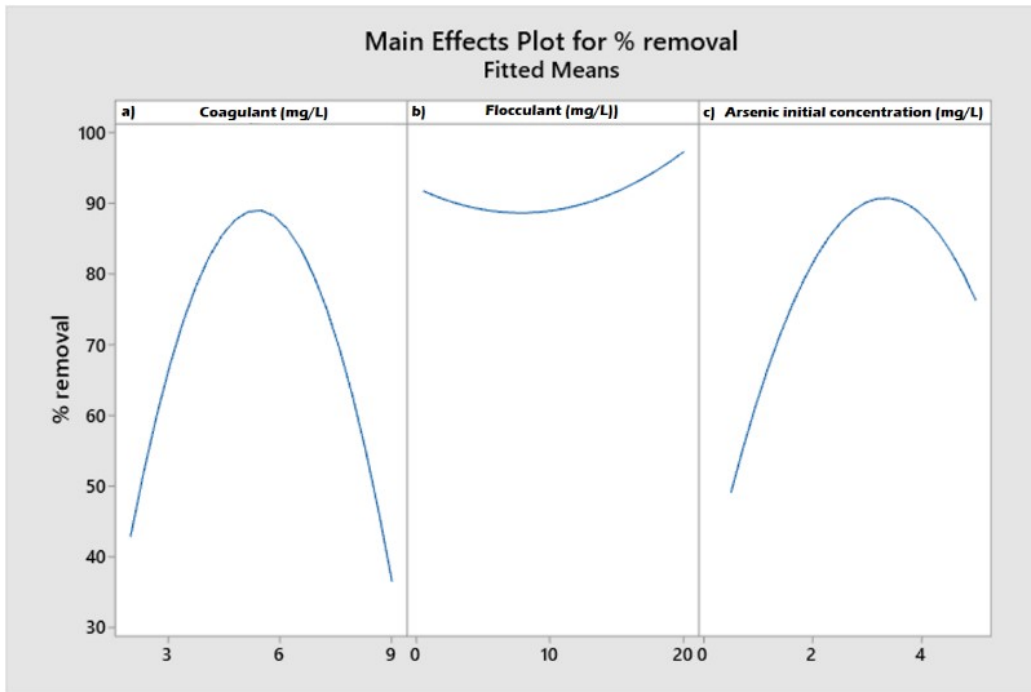
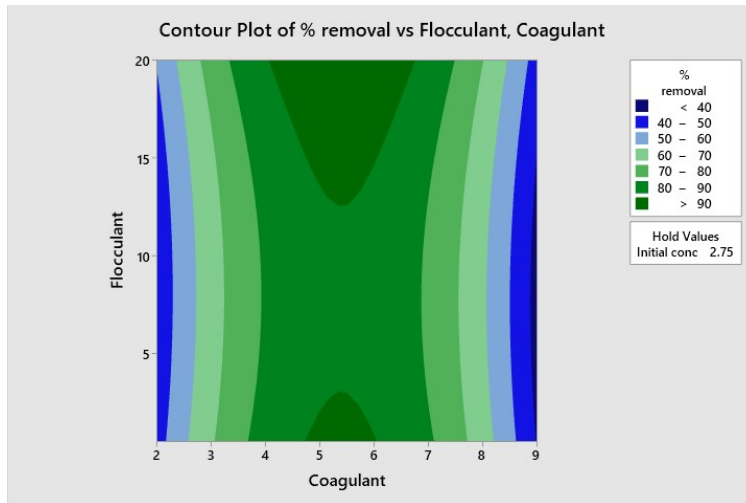


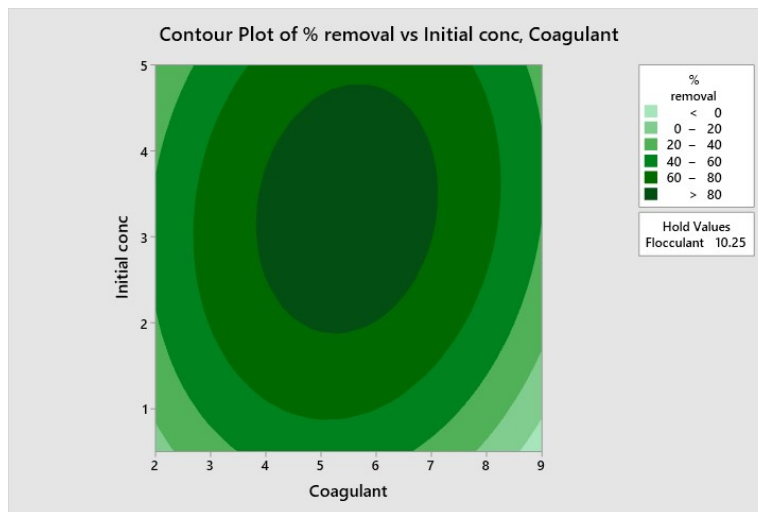
Figure S2: Main effects for the arsenic removal.

**Table S1.** Analysis of Variance (ANOVA)

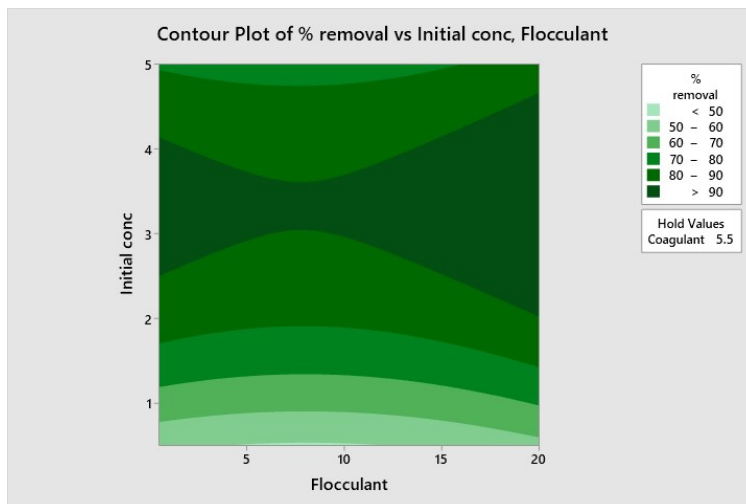
Source	DF	Adj SS	Adj MS	F-Value	P-Value
Model	9	26442.2	2938.0	27.40	0.000
Linear	3	3247.5	1082.5	10.10	0.000
Coagulant	1	156.2	156.2	1.46	0.241
Flocculant	1	121.0	121.0	1.13	0.301
Initial conc	1	2970.3	2970.3	27.70	0.000
Square	3	22545.7	7515.2	70.09	0.000
Coagulant*Coagulant	1	17911.8	17911.8	167.05	0.000
Flocculant*Flocculant	1	223.4	223.4	2.08	0.164
Initial conc*Initial conc	1	5088.5	5088.5	47.46	0.000
2-Way Interaction	3	649.0	216.3	2.02	0.144
Coagulant*Flocculant	1	0.5	0.5	0.00	0.946
Coagulant*Initial conc	1	648.0	648.0	6.04	0.023
Flocculant*Initial conc	1	0.5	0.5	0.00	0.946
Error	20	2144.5	107.2		
Lack-of-Fit	3	2144.5	714.8	*	*
Pure Error	17	0.0	0.0		
Total	29	28586.7			



**Figure S3:** Contour Plot of % arsenic removal Flocculant vs coagulant.



**Figure S4:** Contour Plot of % arsenic removal Initial arsenic concentration vs. coagulant.

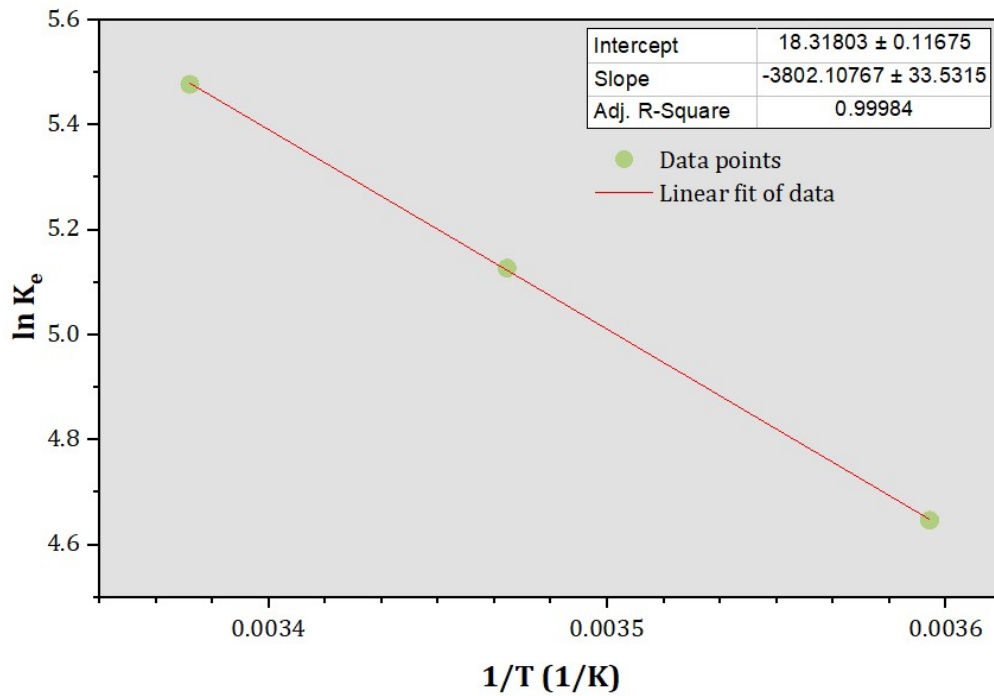


**Figure S5:** Contour Plot of % arsenic removal Initial arsenic concentration vs. flocculant.

**Table S2.** coefficients of the response function for arsenic RE (%).

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	89.00	4.23	21.05	0.000	
Coagulant	-3.13	2.59	-1.21	0.241	1.00
Flocculant	2.75	2.59	1.06	0.301	1.00
Initial conc	13.63	2.59	5.26	0.000	1.00
Coagulant * Coagulant	-49.25	3.81	-12.92	0.000	1.01
Flocculant * Flocculant	5.50	3.81	1.44	0.164	1.01
Initial conc * Initial conc	-26.25	3.81	-6.89	0.000	1.01
Coagulant * Flocculant	0.25	3.66	0.07	0.946	1.00
Coagulant * Initial conc	9.00	3.66	2.46	0.023	1.00
Flocculant * Initial conc	0.25	3.66	0.07	0.946	1.00

S	R-sq	R-sq(adj)	R-sq(pred)
10.3550	92.50%	89.12%	80.80%



**Figure S6:** van't Hoff plot for thermodynamic parameters of CF-based arsenic removal.

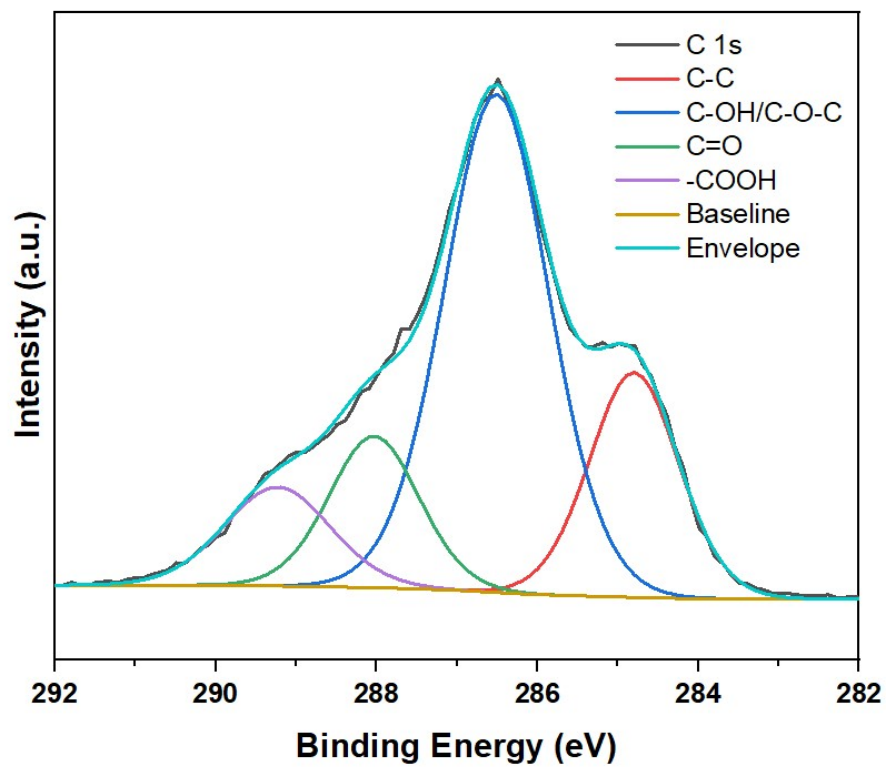


Figure S7: Deconvoluted peaks for C 1s for AVM.

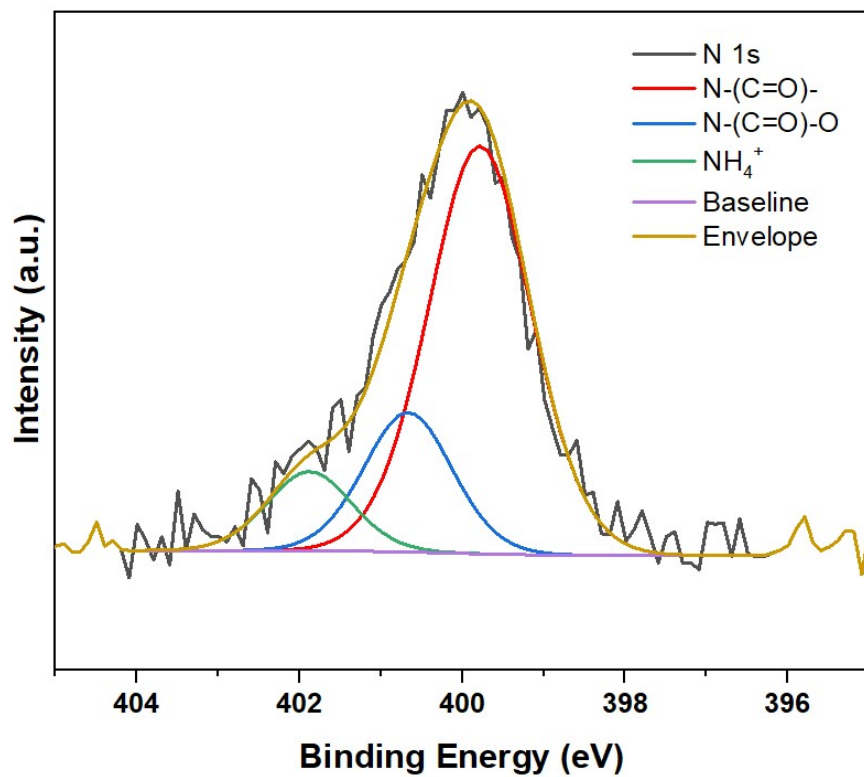


Figure S8: Deconvoluted peaks for N 1s for AVM

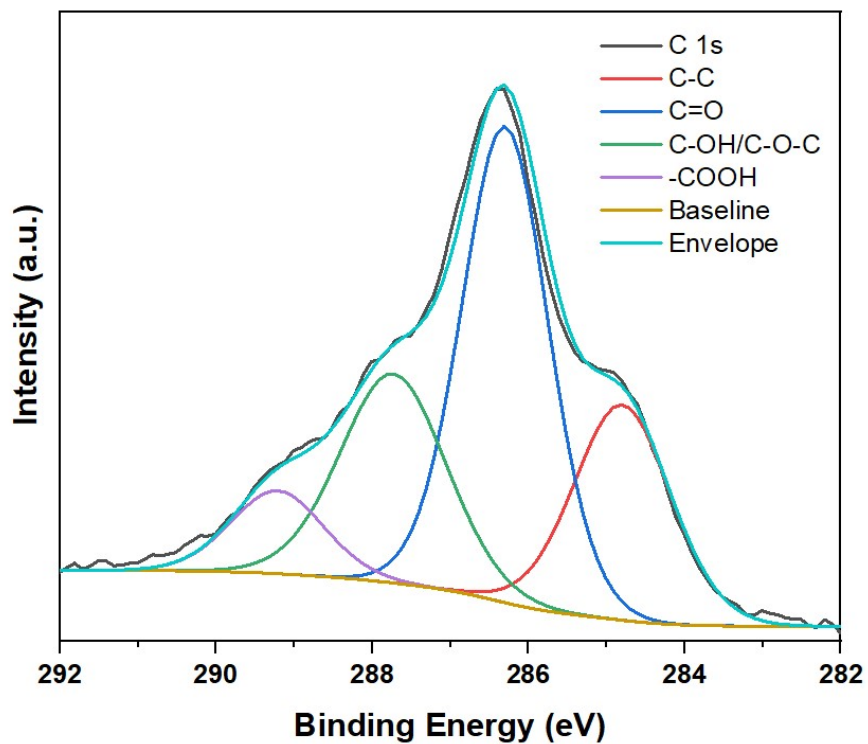


Figure S9: Deconvoluted peaks for C 1s for AVM-As flocs.

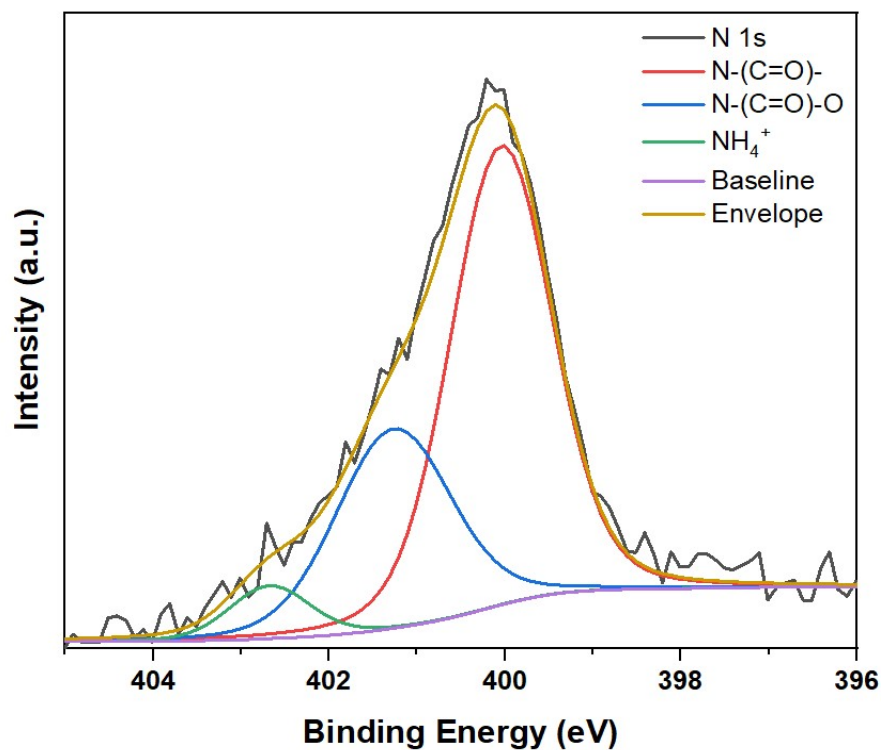


Figure S10: Deconvoluted peaks for N 1s for AVM-As flocs.

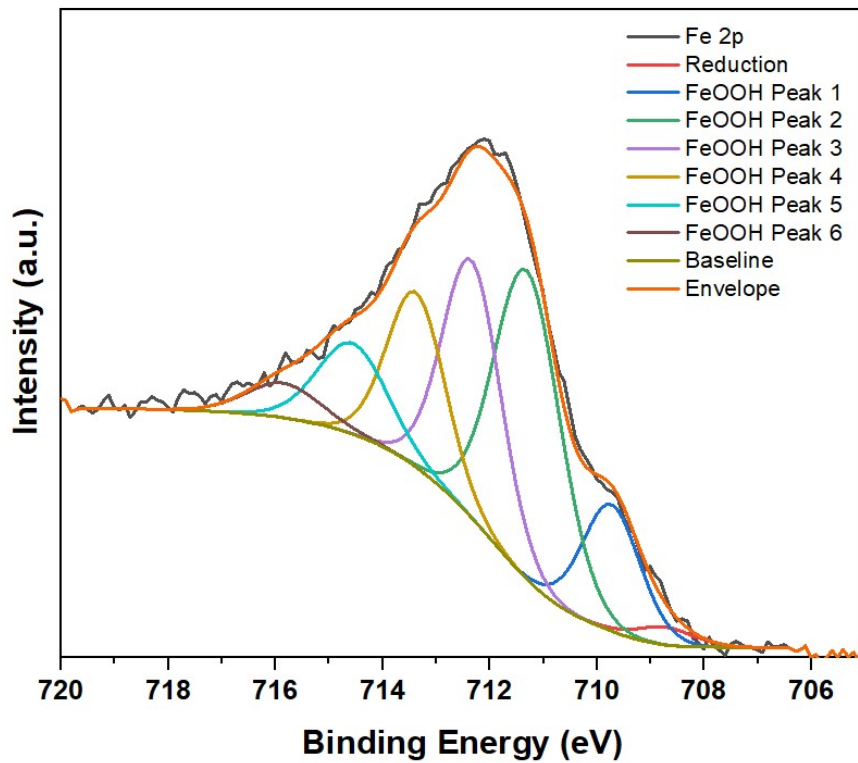


Figure S11: Deconvoluted peaks for Fe 2p for AVM-As flocs.

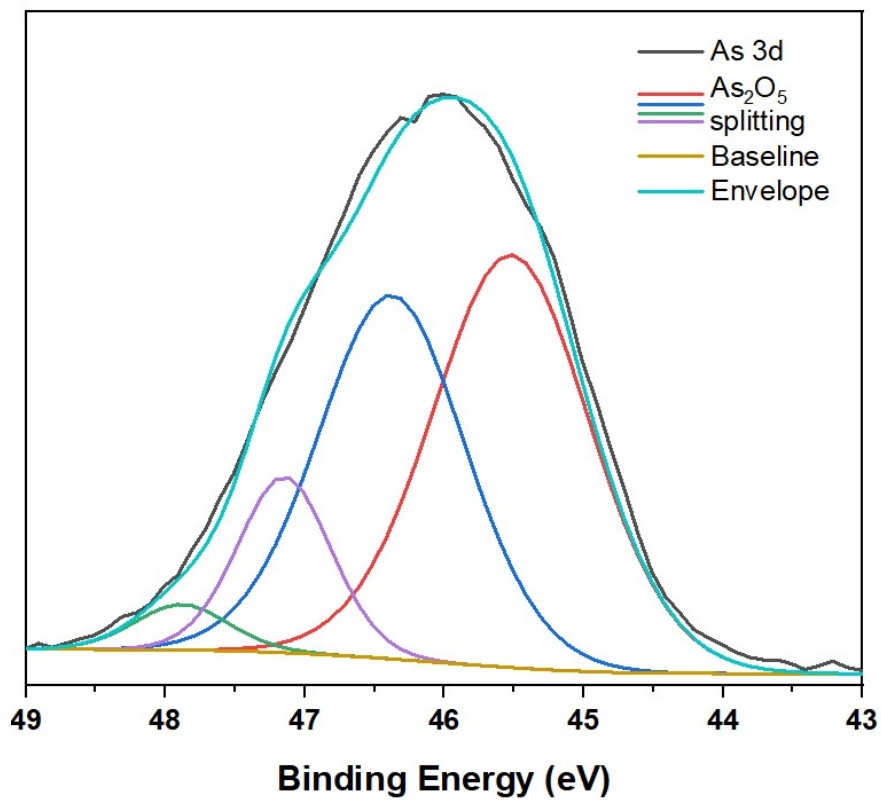


Figure S12: Deconvoluted peaks for As 3d for AVM-As flocs.