

Supporting Information for

Graphene aerogels decorated with α -FeOOH nanoparticles for efficient adsorption of arsenic from contaminated waters

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Methylene blue (MB) adsorption method

The test was conducted by first adding a known mass of the aerogel into a MB solution of standard concentration (200 ppm). The mixed suspension was then

sonicated for 2 h and stirred continuously for 24 h to reach the adsorption-desorption equilibrium of MB. Suspended materials were then removed by centrifuging the mixture. The MB concentration was consequently measured by analysing the supernatant through UV-Vis spectroscopy at a wavelength of 665 nm compared with the initial standard concentration. The SSA of the aerogel was then calculated using the following equation:

$$SSA = \frac{N_A A_{MB}}{M_{MB}} \frac{(C_0 - C_e)V}{m_S}$$

where N_A represents Avogadro number ($6.02 \times 10^{23}/\text{mol}$), A_{MB} is the covered area of per MB molecules (typically assumed to be 1.35 nm^2), C_0 and C_e are the initial and equilibrium concentration of MB, respectively, V is the volume of MB solution, M_{MB} , is the relative molecular mass of MB, and m_S is the mass of the sample.

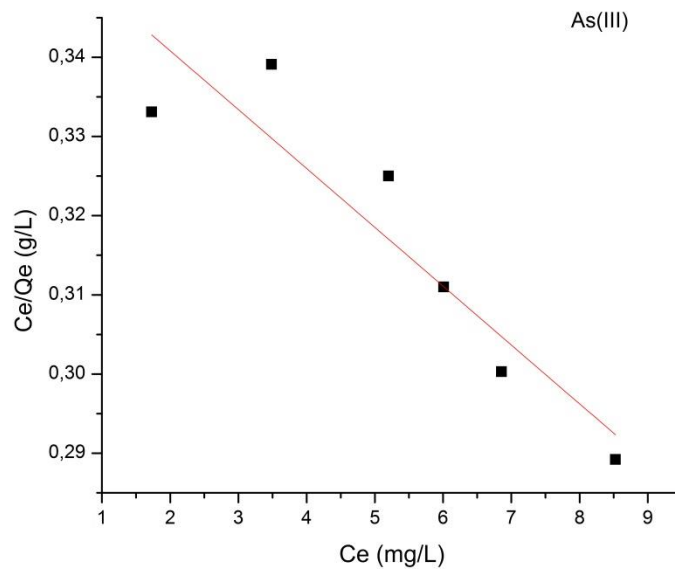


Figure S1. Langmuir plot for the sorption of As(III) on the graphene- α FeOOH aerogel.

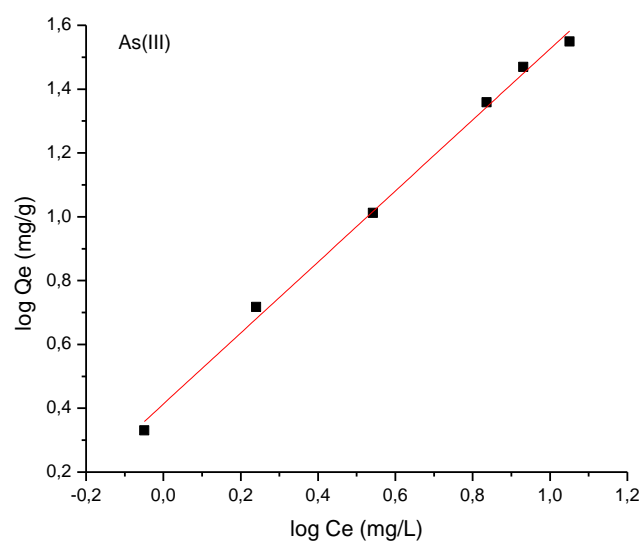


Figure S2. Freundlich plot for the sorption of As(III) on the graphene- α FeOOH aerogel.

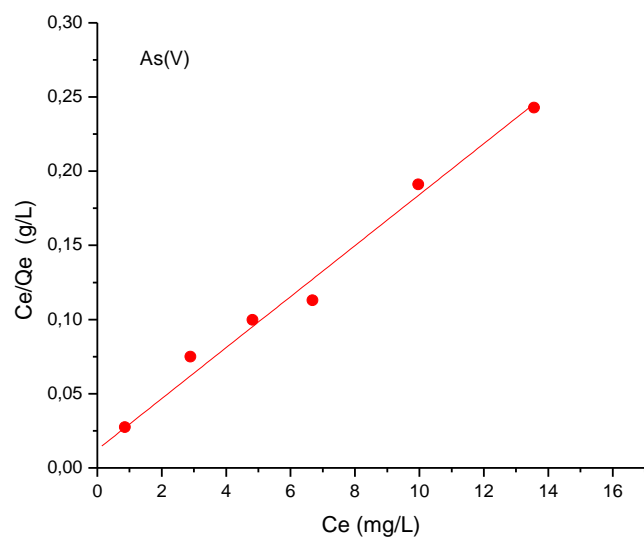


Figure S3. Langmuir plot for the sorption of As(V) on the graphene- α FeOOH aerogel.

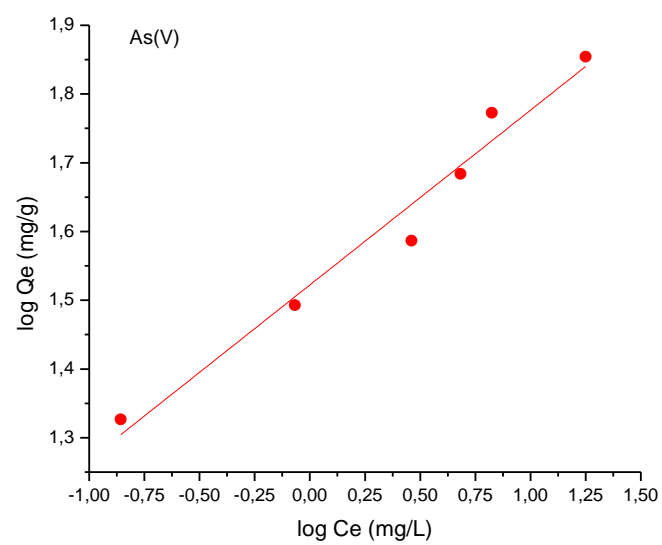


Figure S4. Freundlich plot for the sorption of As(V) on the graphene- α FeOOH aerogel.

Table S1. Chemical composition of the tap water in the city of Zrenjanin, Serbia (pH 8.0±0.2)

Component	Concentration (mg/L)
Cl ⁻	12.67±0.8
F ⁻	< 0.05
SO ₄ ²⁻	48.32±1.4
HCO ₃ ⁻	122±2.3
PO ₄ ³⁻	1.2±0.1
NO ₂ ⁻	0.087±0.009
NO ₃ ⁻	36.73±2.8
NH ₄ ⁺	0.25±0.4
As	0.150±0.05
Ca	20.1±1.1
Mg	11.0±0.6
K	2.5±0.2
Na	260±22
Fe	0.36±0.04
Mn	0.014±0.003
Zn	0.020±0.004