**Supplementary file**



**Fig. S1**. Calibration curve of LEV aqueous solutions

**Calibration curve and validation.**

The maximum absorption wavelength ($λ\_{max}$) was 289 nm, and the calibration curve was linear in the concentration range (2.5-40 mg/mL). The obtained regression equation (Y = 0.0769 X + 0.0283) was used to calculate the residual LEV concentration. After equilibrium was established, each solution was filtered through a 0.45µm filter, and the final LEV concentration in each solution was calculated. The validation procedure was carried out in accordance with the ICH guidelines to determine linearity, accuracy, precision, specificity, the limit of detection (LOD), and the limit of quantification (LOQ) (ICH 2005). The used analysis method was validated in accordance with ICH guidelines, and the results of the validation parameters were within acceptable limits. The observed linearity range fits well with the Beer-Lambert law, and the associated regression coefficient (r2 = 0.9996) indicated a high degree of method sensitivity (ICH 2005). The recovery accuracy and precision of the method were both good, as RSD (2%) was within the allowable limit of 5%.



**Fig. S2**. EDS spectrum for a selected area of PG-Fe0 composite.

**Table S1**

Comparison between the removal capacity of PG-Fe0 for LEV with other natural and synthetic adsorbents.

|  |  |  |
| --- | --- | --- |
| **Adsorbent** | **Qm (mg/g)** | **References** |
| UiO-66/CA | 86.43 | (Sun et al., 2019) |
| Charcoal | 87 | (Khalaf and Shqair 2010) |
| Kaolin | 0.26 | (Khalaf and Shqair 2010) |
| Zeolite Y | 45 | (Martucci et al., 2012) |
| Fe3O4@SiO2 | 6.85 | (Al-Jabari et al., 2019) |
| Mordenite | 27 | (Martucci et al., 2012) |
| MgO/CaO NRs | 106.75 | (AbuKhadra et al., 2020) |
| Modified zeolite | 47.68 | (Abukhadra et al., 2020) |
| PG-Fe0 | 66.3 | This study |



**Fig. S3**. Arrhenius plot for the adsorption of LEV at pH = 6.5.



**Fig. S3**. A linear plot for determining thermodynamic parameters at pH = 6.5.

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