

# Tea-Waste-Mediated Magnetic Oxide Nanoparticles as a Potential Low-Cost Adsorbent for Phosphate ( $\text{PO}_4^{3-}$ ) Anion Remediation

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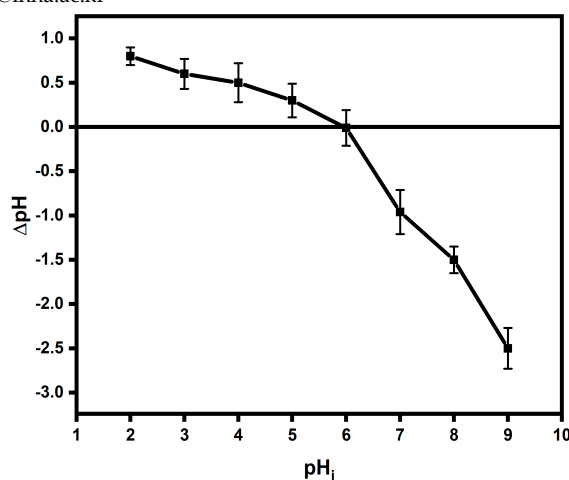
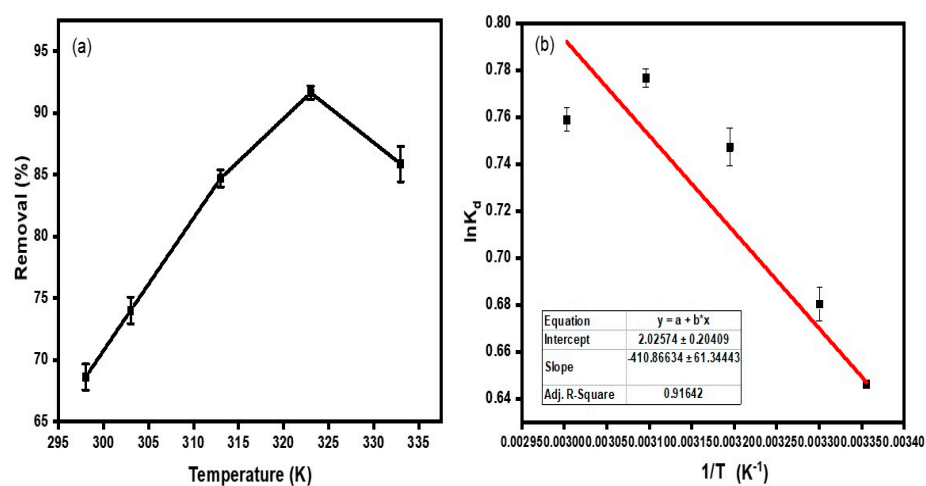


Figure S1. Plot for PZC for TW-Fe<sub>3</sub>O<sub>4</sub>.



**Figure S2.** Effect of temperature and Van 't Hoff Plot for removal of  $\text{PO}_4^{3-}$  ions by TW- $\text{Fe}_3\text{O}_4$

**Table S1.** Equilibrium parameters for adsorption of  $\text{PO}_4^{3-}$  ions by TW- $\text{Fe}_3\text{O}_4$  adsorbent

Adsorption Isotherm	Parameters	
	$K_L$ (L/mg)	$q_m$ (mg/g)
Langmuir Adsorption Isotherm	0.0221	227.27
	$R^2$	0.9460
	$K_F$ (mg/g)	n
Freundlich Adsorption Isotherm	3.5704	1.849
	$R^2$	0.9874
	$\beta$ (mol <sup>2</sup> /kJ <sup>2</sup> )	$q_m$ (mg/g)
Dubinin-Radushkevich (DRK)	$4 \times 10^{-8}$	1.358
Model	$R^2$	0.8506