

## Polyethyleneimine (PEI) modified pectin fiber for adsorption of mercury ions from aqueous solution

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Mercury is considered one of the most toxic metals in the aquatic environment, hence it is necessary to remove mercury. In this study, a fiber-type biomass-based green sorbent, PEI-pectin fiber, was successfully prepared through a simple and gentle method and was used to removal of Hg(II). The newly prepared fiber was thin with a diameter of approximately 70–80  $\mu\text{m}$ . It was noted that the PEI play a major role in the removal of Hg (II). The PEI-pectin fiber exhibited the highest adsorption capacity at pH 5 and its saturated adsorption was  $532.96 \pm 50.61$  mg/g according to the Langmuir isotherm model, showing superiority to other previous studies on pectin based sorbents in recent years. XPS analysis proved that the main adsorption mechanisms were coordination and ion exchange. Overall, the PEI-pectin fiber is a promising biosorbent to remove Hg(II) from an aqueous solution.