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**Record 1 of 1****Title:** The Optimum Condition for the Synthesis of Carbon Nanofibers on Activated Carbon to Remove Lead from Aqueous Solution**Author(s):** Al Mamun, A (Al Mamun, Abdullah); Ahmed, YM (Ahmed, Yehya M.); Al Khatib, MFR (Al Khatib, Ma'an Fahmi R.); Jameel, AT (Jameel, Ahmad T.); Al Saadi, MA (Al Saadi, Mohammed A.)**Source:** INTERNATIONAL JOURNAL OF NANOELECTRONICS AND MATERIALS Volume: 12 Issue: 2 Pages: 135-143 Published: APR 2019**Times Cited in Web of Science Core Collection:** 0**Total Times Cited:** 0**Usage Count (Last 180 days):** 0**Usage Count (Since 2013):** 0**Cited Reference Count:** 34

Researcher's optimum process condition for the production of Carbon Nanofibers (CNFs) to remove lead ion (Pb) from aqueous solution is reported here. The CNFs were produced on the catalyst (Ni²⁺) impregnated palm oil-based cheap Powder Activated Carbon (PAC). Locally fabricated Chemical Vapour Deposition (CVD) system was used while acetylene (C₂H₂) was the carbon source. The porous nano-composite product is named "PAC- CNFs", which was synthesized through a process using impregnated oil palm shell based PAC as a solid substrate. Design Expert 6.0.8 software was used to design the experimental plan and to determine the optimized process parameters for the growth of CNFs by using sorption capacity for Pb²⁺ by the PAC-CNFs adsorbent, as a response. The effect of different factors on the growth of CNFs including the temperature of CNFs growth (550 to 750 degrees C), time of growth (30 to 60 min), and the ratio of input C₂H₂/H₂ gases (0.25 to 1.0) was evaluated. The predicted values for the sorption capacity of Pb²⁺ by the PAC-CNFs were in close agreement with the experimental data (R² = 0.99). The optimal process condition: temperature for the growth of CNFs, time, and C₂H₂/H₂ ratio was determined as 637 degrees C, 30 min, and 1.0, respectively. The CNFs grown under the optimized condition exhibited sorption capacity of 77 mg/g in removing Pb²⁺ from synthetic wastewater containing lead (Pb²⁺) ion.

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