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Extraction chemicals from aquatic samples with functionalized Carbon nanotubes sorbents

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Aims: Along with the development of technology, need to the use of several toxic chemicals increased so human exposure to these substances can effect on health of them. Therefore several methods for the assessment such exposure in different workplaces are essential. Needle trap technique is one extraction method that was developed and in this research have been used with nano sorbent to extraction toluene from aquatic samples.

Methods: In this study, sorbents based on carbon nanotubes were was synthesized by sol-gel method. Needles were packed with synthesized nano sorbent and extraction of toluene in headspace was done with dynamic headspace needle trap technique. For Analysis of collection samples gas chromatography- flame ionization detector was used.

Results: Results showed that repeatability in the extraction of toluene in aquatic sampls with synthesized nano sorbent and NTD was 9% in optimum extraction about temperature and time extraction(50°c and 30 min).

Conclusion: Using needle trap devices that were packed with synthesized nano sorbent has high efficiency in extraction small amounts of toluene in aquatic samples. The use of synthesized sorbent based on carbon nanotubes reduces the cost of using the expensive commercial sorbents. This technique has good reproducibility, is relatively simple and minimize need of toxic solvents.

Key words: NTD, Carbon nanotube, Toluene

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