

Synthesised and Modification of Silica Nano Particles for the Determination of Narcotics by Solid Phase Dispersion Extraction

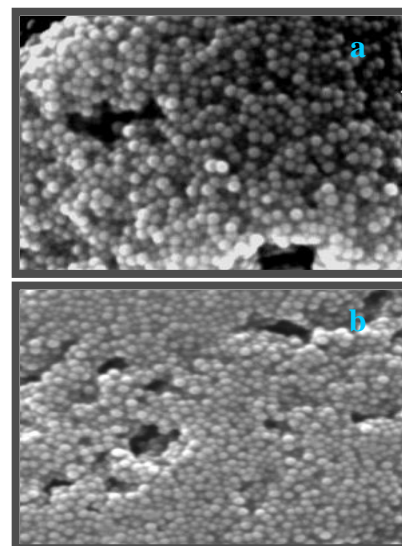
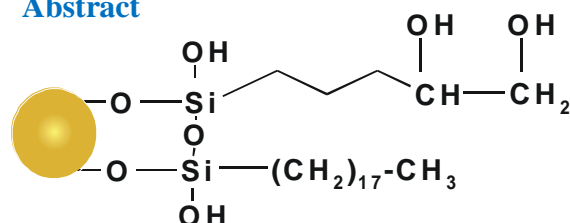
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Abstract



The extraction of drugs was applied and the results in (Table 2) shows that the pH is an important factor for recovery. As the benzodiazepines listed bellow had a recovery over 90% when the pH=5 except chlordizepoxide and nitrazepam. Whereas the Tetrazepam among other benzodiazepines has a recovery over 90% when the pH was 9. Heroine and Methaqualone also gave a recovery over 98%. The results also show that the equilibrium time between particles and drugs was sufficient over 30 minute equilibrium time.

Results and Discussion: The SEM image (Figure a) shows that both product having a spherical shape particles of around 100 nm. The SEM image in (Figure b) shows aggregation that may have occurred during the SEM sample preparation.

Drug	Abs. of Drug standard solution	Recovery at pH5	Recovery at pH 7	Recovery at pH 9
Chlordizepoxide	0.875	62.9±3	40.0±3	0.0±2
Diazepam	1.05	90.5±5	66.7±2	71.43±1
Fludiazepam	0.902	99.2±2	72.0±1	55.40±3
Nitrazepam	0.405	67.9±4	74.1±3	49.38±2
Tetrazepam	1.44	92.0±3	59.0±3	90.28±2
Heroine	0.55	-	-	98.18±2
Methaqualone	0.45	-	-	99.5±4

Conclusion: The characterization of the dual-functionality-nano silica confirmed their spherical shape with 100 nm diameter. The dual-functionalised silica nano particles have been successfully employed to extract 5 selected drugs; Chlordizepoxide, Diazepam, Fludiazepam, Nitrazepam, Tetrazepam, Diamorphine, Methaqualone) from aqueous solution. High recoveries were obtained with *ca.* 30 minutes equilibration time. Over 90% recoveries were obtained for most of the studied drugs.