

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

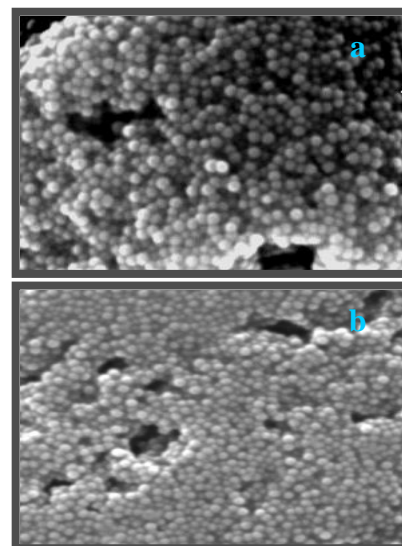
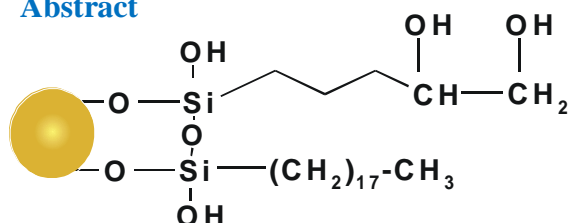
*Nezar Hassan Khdary and Ahmed Eliss Gassim*

Research Unite Makkah Toxicology Center

Makkah, P.O.Box 8427 E.Mail nozor@yahoo.com

The International Conference For Nanotechnology Industries, 2009

### 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.