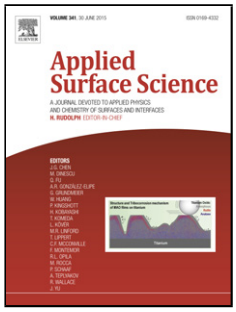

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BIFUNCTIONAL SILICA NANOSPHERES WITH 3-AMINOPROPYL AND PHENYL GROUPS. SYNTHESIS APPROACH AND PROSPECTS OF THEIR APPLICATIONS

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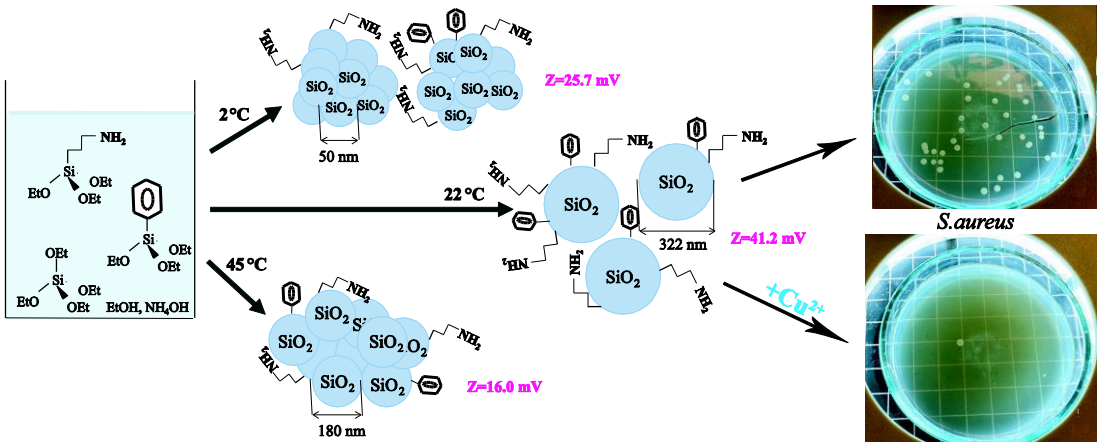
Graphical abstract



Highlights

- Silica particles with amino-/phenyl- groups were produced;
- Changes in synthesis temperature varies particles Z-potential from 16 to 41.2 mV;
- Bifunctional sorbents showed enhanced sorption of Cu(II) ions and methylene blue;
- Synthesized powder materials can be advanced for use as antibacterial agents.

Abstract

Spherical silica particles with bifunctional ($\equiv Si(CH_2)_3NH_2/\equiv SiC_6H_5$) surface layers were synthesized by the Stöber method using ternary alkoxysilanes systems. The influence of the synthesis conditions, such as temperature and stirring time on the process of nanoparticles formation was studied. The presence of introduced functional groups was confirmed by