

Silica nanoparticles modified by amine groups and zinc as precursors for anti-candida drugs

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Abstract

Estimation of influence of ion Zn(II) and nanocomposite $\{\text{SiO}_2\}_n[(\text{CH}_2)_3\text{NH}_2]_m@ZnCl_2$ on catalytic activity of *SAP2 Candida albicans* was aim of this work. Surface modification of silicate nanoparticles on the basis of commercially available precursor (LUDOX TM40) by 3-aminopropyltrimethoxysilane was carried out. Conditions of an immobilization of ions of Zn(II) as a part of composition $\{\text{SiO}_2\}_n[(\text{CH}_2)_3\text{NH}_2]_m@ZnCl_2$: concentration of $(\text{CH}_2)_3\text{NH}_2$ fragment 1×10^{-7} mol/l, concentration of $ZnCl_2$ 1×10^{-8} – 5×10^{-3} mol/l. The composition $\{\text{SiO}_2\}_n[(\text{CH}_2)_3\text{NH}_2]_m@ZnCl_2$ has inhibiting effect on the induced proteinase of *Candida albicans* and possesses fungicide and fungistatic effects in relation to cultures of *Candida albicans*, *Candida parapsilosis*, *Candida tropicalis*.