

## عنوان مقاله:

TiO<sub>2</sub> (Anatase) Nanoparticles a Novel Catalyst for Synthesis of vic-Diacetates as Biologically Active Compounds

## محل انتشار:

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## نویسندگان:

Masoomeh Torabi Momen - *Department of Chemistry, Faculty of Science, Zanjan University, Zanjan, Iran*

Farideh Piri - *Department of Chemistry, Faculty of Science, Zanjan University, Zanjan, Iran*

Ramin Karimian - *Chemical Injuries Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Shahram Parvin - *Chemical Injuries Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran*

## خلاصه مقاله:

**Introduction:** This study represents efficient ring opening of epoxides to the corresponding vicinal diacetates in the presence of acetic anhydride. Different catalyst including molecular sieves, zirconyl triflate, LiClO<sub>4</sub>, zeolite, LiAlH<sub>4</sub> and some other catalyst were reported so far as efficient catalyst for epoxide ring opening and subsequent diacetylation. In the present study, catalytic amount of commercially available TiO<sub>2</sub> (anatase) nanoparticles (NPs) were used to promote reactions. **Materials and Methods:** According to X-ray diffraction (XRD) patterns, anatase is the main phase of the TiO<sub>2</sub> and scanning electron microscope (SEM) images revealed almost all the particles are under 100 nm in size. Existence of just oxygen and titanium peaks in EDS spectrum confirms high purity of catalyst. **Results:** It was found that catalyst revealed good reusability and could be used in 3 cycles without marked loss of efficiency for synthesis of vic-diacetates from epoxides. Reactions of structurally diverse epoxides in the presence of acetic anhydride and catalytic amount of titanium dioxide were set at 100°C, progress of the reactions were monitored by thin layer chromatography (TLC) and gas chromatography (GC) which resulted in good to excellent yields. **Conclusions:** In brief, the current work represents an efficient procedure for one-pot conversion of structurally different epoxides to the corresponding vic-diacetates. Comparison of cyclohexene oxide acetylation in the presence of titanium dioxide NPs and other catalyst confirmed acceptable efficiency of anatase titanium dioxide as a clean, safe and low cost catalyst for reaction promotion.

## کلمات کلیدی:

Ring Opening, TiO<sub>2</sub> (Anatase) NP, vic-Diacetate

## لینک ثابت مقاله در پایگاه سیویلیکا:

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