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Synthesis and characterization of solids with strong basic properties applied as catalysts in the synthesis of pseudo ionone

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Summary

The “fine chemistry” is dedicated to the production of compounds of high added value`[1,2,3], usually these compounds are obtained by organic reactions in liquid phase [4] that use as homogeneous catalysts acids and mineral bases [5,6,7], which generates problems of environmental, contamination an make difficult recovery of the Final product. An important group of such compounds are α, β-unsaturated aldehydes and ketones such as the pseudoionone (6,10-dimethyl-3,5,7-undeca-trien-2-one), which is used as a raw material for synthesize ionones of cosmetic and pharmaceutical interest [8]. An alternative way of carrying out these processes is by the use of solid catalysts which do not generate the aforementioned drawbacks [9-12]. In the present work are presented results obtained using metallic oxides mixed with strong basic properties ($MgO-Al2O_3$, $CaO-Al_2O_3$, $SrO-Al_2O_3$, $MgO-CaO-Al_2O_3$) are reported as possible catalysts in the synthesis reaction of Pseudoionone. These oxides were obtained from air calcination of hydrotalcite. The precursors were characterized by the techniques of nitrogen physisorption, EDS, DRX, SEM, as well as by DTP of CO_2 and NH_3. The activity of the synthesized oxides was tested in the aldol condensation reaction between citral and acetone, under reflux conditions at 80 ° C and over a period of 72 h. The reaction mixture was analyzed at different times by GC-MS technique. Under the selected reaction conditions, the highest yield of pseudo-ionone was 83%, resulting in retinol and retinal byproducts (10 and 2%, respectively).

Biography

Graduate of the school of chemical engineering and mastery in semiconductor devices (BUAP university), current student in PhD in chemical sciences (Area of catalysis) several research stays at universities (UNAM an Saskatoon university). Participation in various congresses in the area, currently in the process of publishing my first article concerning the synthesis of Ionone by heterogeneous catalysis.

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