Developing nanoporous nickel phosphate VSB-5 as a base catalyst in heterogeneous system

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The nanoporous nickel phosphate VSB-5 and sodium, KF-modified VSB-5 were synthesized from aqueous system without any organic template using microwave under pH controlled condition. VSB-5 has been used as a catalyst for the aldol condensation of benzaldehyde and acetophenone in heterogeneous reaction media with proton abstraction by the surface basic sites of VSB-5. The adsorption and catalytic tests were made to explain the availability of active base sites within the framework that constitute the basis for catalytic performance of nickel phosphates. These materials attracted scientific attention due to the active nickel site and their potential application in heterogeneous catalysis over alkali promoted VSB-5, and studied for the adsorption and catalytic activity complementary to the basic property of the surface.