



First Laureate Fundamental Research



Project Title: Synthesis of new silica based resins and their applications in the chemical processes

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Abstract:

Object: Synthesis of new silica based resins and their applications in the chemical processes under mild, heterogeneous and green conditions. In this project silica gel was used as a suitable bed due to its special properties. Some new silica based resins such as silica sulfuric acid; chelating silica, silica chromate and vulcanized silica were synthesized for the first time. The synthesized resins were applied in the chemical processes, softening and removing of heavy metals from water. Fortunately, this field of research is an active and attractive ongoing research idea for national and international research groups. For instance silica sulfuric acid as a new inorganic solid acidic resin has been used widely in chemical reactions as a catalyst or reagent under mild, heterogeneous and green conditions. In the some cases, it has been recycled and also reused.

Achievements:

- Publication of international papers with high citation.
- Selection of two of later papers as highly cited paper by Institute of Scientific Informations (ISI).
- Preparation of new resins for water softening and removing heavy metal cations from water.
- Training of researchers and increasing of our experience to do applied projects in future.
- Entering the reported data of some published papers into the scientific text books.
- Application of the synthesized resins in chemical process under mild, heterogeneous and green conditions so that the obtained results has published as two papers in the high quality international journal "Green Chemistry".

The researcher published more than 222, ISI journal papers.