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Synthesis of composite materials for chromatographic column separations

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Synthesis of composite materials for chromatographic column separations. Conventional ion exchange resins although possess excellent ion exchange properties but suffers from two limitations, firstly they decompose at elevated temperatures and secondly do not withstand high ionizing radiations when used in atomic reactors. It is for these reasons scientists made efforts to synthesize inorganic ion exchangers that can cope with the above mentioned difficulties. One of the striking feature of inorganic ion exchangers is that they can be obtained in granular and fibrous form with cavities of desired size showing selectivity towards anions, cations or organic molecules. These materials also suffer from certain limitations. They undergo hydrolysis when used in aqueous systems and are obtained usually in powder form. In order to overcome these shortcomings encountered with organic and inorganic ion exchangers, attempts were made to develop organic –inorganic composite materials as ion exchangers. These composite materials exhibit properties entirely different from that of parent components. The composite materials are being investigated due to the following distinct properties: They show improved mechanical strength, They have greater thermal and chemical stability, Enhanced ion exchange capacity, They can be synthesized in granular form suitable for column operations, They possess electrochemical properties as well as shows optical and magnetic behaviour.

Biography

Dr. Amjad Mumtaz Tahir Khan has completed his Ph.D specializing in Analytical Chemistry from Aligarh Muslim University, Aligarh, India. He is member, faculty of science since 2014 and also Member of the project consultancy committee of his department. Currently he is the Assistant Editor of the BZM Journal of Science. Dr. Khan has published 18 papers and one book chapter in international referred journals having 236 citations and h index of 8 to his credit. He was awarded environmentalist of the year award by NESAI, New Delhi in 2010. He is also the recipient of the start up grant by university grant commission, New Delhi, India. Currently he is a member of Asian council of editors.

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