

JOINT EVENT

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Solid-phase extraction of protein by using magnetic chitosan and graphene oxide-functional guanidinium ionic liquid composite**Xueqin Ding**

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A series of novel cationic functional hexaalkylguanidinium ionic liquids and anionic functional tetraalkylguanidinium ionic liquids have been synthesized. Magnetic chitosan-graphene oxide (MCGO) composite has been prepared and coated with the functional guanidinium ionic liquids for protein extraction. Vibrating sample magnetometer, x-ray diffraction spectrometer, field emission scanning electron microscopy and Fourier transform infrared spectrometer were used to characterize the MCGO-functional guanidinium ionic liquid composite. After extraction, concentrations of protein were determined by an ultra violet visible spectrophotometer. Lysozyme, trypsin, BSA and ovalbumin could be well extracted by the proposed MCGO-functional guanidinium ionic liquid magnetic solid-phase extraction system. Compared to magnetic chitosan, graphene oxide, MCGO and MCGO-ordinary imidazolium ionic liquid, the MCGO-functional guanidinium ionic liquid has higher extraction capacity. Single factor experiments proved that the extraction efficiency of protein was affected by temperature, pH value, extraction time, amount of MCGO-functional guanidinium ionic liquid composite and concentration of protein. Moreover, the MCGO-functional guanidinium ionic liquid can be easily regenerated; the extraction capacity after being used three times was 94% of the first time.

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