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Conjugation of manganese ferrite nanoparticles to an anti Sticholysin monoclonal antibody and conjugate applications

V. Figueroa-Espí^a, A. Alvarez-Paneque^a, M. Torrens^a, A.J. Otero-González^b, E. Reguera^{c,*}^a Institute of Materials Science and Technology, University of Havana, Havana, Cuba^b Center for Proteins Study, Faculty of Biology, University of Havana, Havana, Cuba^c Center for Applied Science and Advanced Technology of IPN, Legaria Unit, Mexico, D.F., Mexico

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ABSTRACT

In this study the potential applications of manganese ferrite (MnFe_2O_4) nanoparticles for bioanalytical applications are evaluated. These magnetic nanoparticles show peroxidase-like activity similar to that reported for magnetite nanoparticles and peroxidase enzyme. Based on this finding, colloidal suspensions of manganese ferrite were conjugated to an anti-Sticholysin II (StII) monoclonal antibody. The resulting conjugate was then used as a revealing tool in a novel immunoassay for StII detection. From the combined magnetic properties and specific recognition of anti-StII- MnFe_2O_4 conjugate, Sticholysins were separated from whole aqueous extract of marine anemone obtaining 75% of purity. The results herein discussed illustrate the potential applications of manganese ferrite nanoparticles as bioanalytical tools for immunoassay and protocol for protein separation.