A STUDY OF DIFFERENT MAGNETIC PARTICLES FOR THE OBTENTION OF LOCALLY PREPARED SOLID-PHASE REAGENTS FOR hTSH IRMA

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A polyclonal anti-TSH antiserum was coupled to three different magnetic particles, to be used as capture antibody in a two-site immunoradiometric assay (IRMA) for human thyrotropin (hTSH). The antiserum was donated by Dr. A. Bulatov (Russian Academy of Sciences, Moscow). Magnetic particles preparations were: A.Plain magnetite -Fe_3O_4 - (Hungarian Academy of Sciences), to which IgG molecules are adsorbed (chemisorption) and stabilized by cross-linking through EDAC reaction; B. Fe_3O_4 particles trapped into cellulose (M104 from SCIPAC, U.K.), to which antibodies are bound through CDI reaction; and C. Silanized Fe_3O_4 magnetic particles (Institute of Atomic Energy, China) to which antibody binds through an EDAC activated chemical reaction. As control reagent, magnetic cellulose from NETRIA (London, U.K.) was used. With this reagent, "zero bindings" (Bo) were of the order of 0.20% and bindings at the maximum dose (B_{60}) around 25%.

The best results were obtained with matrix A,with Bo reaching limit values of 0.02-0.2% and B_{60} around 15-20%; the sensitivity of the standard curve was of the order of 0.05-0.1 mIU/ℓ, which is at least as good as that obtained with the NETRIA reagent. With matrix B,Bo approached the values obtained with matrix A, B_{60} was significantly lower. The reagent prepared with matrix C,although giving good Bo and B_{60} values (0.10% and 27%, respectively), unfortunately lost binding capacity in a short period of time.

In conclusion, all three magnetic matrixes worked well, may be with a certain higher performance presented by the matrix A. The matrix C also provided some excellent results, but for some reasons we could not attain a good reagent stability yet.

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