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On the Magnetic and Nanometric Composites with $M_xFe_{1-x}O_x \cdot Fe_2O_3$ (M= Co, Ni, Ca) for Novel Radiotherapy

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Paramagnetic carriers with ranging from micro-sized particles to nano-sized colloids, which are linked to antibodies enable highly specified biological cell separations as well as therapeutic *in vivo* applications [1] such as *drug targeting, cancer therapy, lymph node imaging* or hyperthermia [2] . Ensuring biocompatibility and non-toxicity so as to meet the requirements for these applications, iron oxide based particles, e.g. magnetite are commonly used as the magnetically responsive component of commercially available magnetic microspheres [3]. Superparamagnetic or ferromagnetic nanoparticles must pass through an acceptance stage for in vivo and in vitro technologies to make a role of magnetic carrier for cancer treatment parts. Also, the trials for new methods are also important.

The radiotherapy is utilized radioactive-ray to kill the disease cell. The cytotoxic effects of radiation arise from the interaction of short-lived reactive chemical species generated by ionization of the cellular environment with variety of structural and functional biomolecular structures in the cell [4].

In this work, magnetic fluids with superior dispersibility were prepared by applying the coprecipitation with ultrasonic method, and the magnetic and chemical properties of them were analyzed.

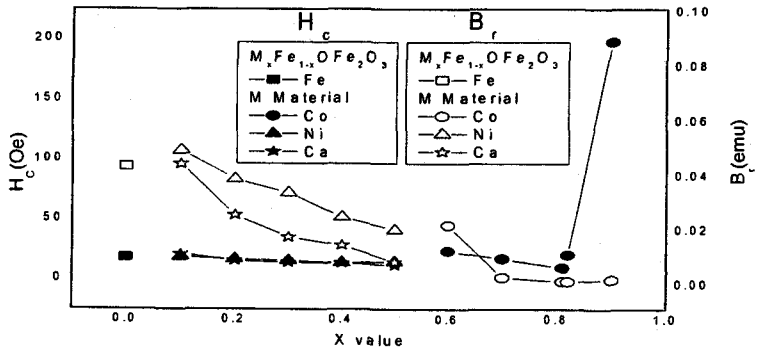

Figure 1. Comparison of Hc and Br with different x value of M material

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