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An anisotropic changes in manganese ferrite nanoparticle by proton irradiation

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INTRODUCTION: The magnetic nanoparticles (NPs) have been reported by many researchers with its scientific and technological interests [1-2]. Especially, the ferrite NPs have shown the novel magnetic properties caused by its small sizes and studied in the fields of hyperthermia, target drug delivery, and the magnetic resonance imaging (MRI) [3]. They were reported to have enhanced properties suitable for MRI reagents, when their sizes reach in nanometer scale [4]. In this report, we have performed with the magnetic properties and the hyperfine structure of $MnFe_2O_4$ NPs.