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The investigation physical and electric properties of $\text{Mg}_{1-x}\text{Mn}_x\text{Fe}_2\text{O}_4$ ceramics

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We have reported physical and electric properties of $\text{Mg}_{1-x}\text{Mn}_x\text{Fe}_2\text{O}_4$ (MMF) ($x = 0.5 - 0.7$) ceramics were prepared using co-precipitation method. The effects of Mn content on the phase formation, morphology, density and electrical properties were investigated. The XRD analysis of the as synthesized powder confirms the formation of the single phase $\text{MgMnFe}_2\text{O}_4$ spinel structure. The microstructure exhibited a rectangular square grain in all samples. The average grain size and the density of the ceramics increased from 2.8 to 8.7 μm and 3.35 – 3.59 g/cm^3 by increasing Mn content. The dielectric constant and dielectric loss decreases with increasing frequency but these parameters increase with increasing temperature.

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