

Synthesis, structural magnetic and electric properties of Mn–Zn ferrite spinel nanoparticles

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Manganese–zinc ferrites were prepared by hydrothermal method. Bulk material was pressed into pellets and sintering at different temperature. The single-phase nature of the prepared nanoceramic samples was confirmed by X-ray diffraction analysis. X-ray diffraction and scanning electron microscopy were utilized to investigate structural parameters. Impedance spectroscopy (IS) and magnetic measurements were carried out in order to study the effect of synthesis on the characteristic properties of Mn–Zn ferrites. The electric parameters (Z' , Z'' , σ) of the samples were measured using impedance analyzer at temperature range 20–600 °C in frequency range 0.1 Hz – 2 MHz.

Keywords: Nanoferrites MFe_2O_4 ; Zn^{2+} and Mn^{2+} ions; Magnetic and Electric properties