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# Structural and magnetic studies of (Ni<sub>0.5</sub> M<sub>0.5</sub> Fe<sub>2</sub>O<sub>4</sub>) where M = Zn, Cu

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## ABSTRACT

(Ni<sub>0.5</sub> M<sub>0.5</sub> Fe<sub>2</sub>O<sub>4</sub>) where M = Zn and Cu doped ferrite nano-particles are synthesized by Sol-Gel Auto combustion method. The nano-sized Zn, Cu and Ni doped ferrite characterized by XRD. The lattice constant was found to be  $a = 8.38 \text{ \AA}$  and  $8.41 \text{ \AA}$ . It is understood that the lattice parameters increase for Cu as compared to Zn contents. The magnetic properties were determined by using VSM, the saturation magnetization was found to be 34 emu/g and 17 emu/g, respectively, and the remnant magnetization was found to be highly depended upon the cation distribution and crystallinity of the investigated ferrite.

KEYWORDS:

Spinel ferrite

XRD

saturation magnetization

coercivity

cation distribution

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