

Figure Caption

Fig. 1. SEM photographs and EDX spectra for $x=0.11$ and $x=0.133$ compounds.

Fig.2. Rietveld refinement for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ compounds with (a) $x=0.11$ and (b) $x=0.133$ at room temperature showing the presence of a manganite as the majority phase and a minor phase identified as unknown phase. The diagram in the bottom (blue color) is the difference between the observed (red color) and theoretical intensities (black color). Green vertical bars indicate the Bragg positions. Small extra peaks of the unknown phase are marked by asterisk in black color.

Fig.3. Left plot: Magnetization isotherms in the Z_{FC} , F_{CC} , F_{CW} processes for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ ($x=0.11$ and 0.133) compounds measured at 200Oe . Right plot: the inverse of susceptibility ($1/\chi$) versus temperature for $\text{Nd}_{0.67}\text{Ba}_{0.11}\text{Ca}_{0.11}\text{Sr}_{0.11}\text{MnO}_3$ and $\text{Nd}_{0.6}\text{Ba}_{0.133}\text{Ca}_{0.133}\text{Sr}_{0.133}\text{MnO}_3$. The straight lines are the best fit to the CW law in the PM region. The inset show the dM/dT versus temperature in M_{ZFC} .

Fig.4. Field dependence of the magnetization measured around T_C at different temperatures by step of 5K for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ manganites ($x=0.11$ and 0.133).

Fig.5. Arrot plots at various temperature for the samples $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$. (a) $x=0.11$ and (b) $x=0.133$.

Fig.6. The isothermal entropy change with magnetic field ranging from 1T to 3T for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ ($x=0.11$ and 0.133) samples.

Fig.7. Field dependences of $-\Delta S_M^{max}$ for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ ($x=0.11$ and 0.133) samples.

Fig.8. Field dependence of RCP for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ ($x=0.11$ and 0.133).

Fig.9. Experimental and theoretical entropy change ($-\Delta S_M$) versus temperature at 5T field application for $x=0.11$ and $x=0.133$.

Fig.10. Normalized $\Delta S_M/\Delta S_M^{max}$ versus rescaled temperature θ for $\text{Nd}_{1-3x}\text{Sr}_x\text{Ba}_x\text{Ca}_x\text{MnO}_3$ ($x=0.11$ and 0.133) for magnetic fields $H=1, 1.5, 2, 2.5$ and 3T .

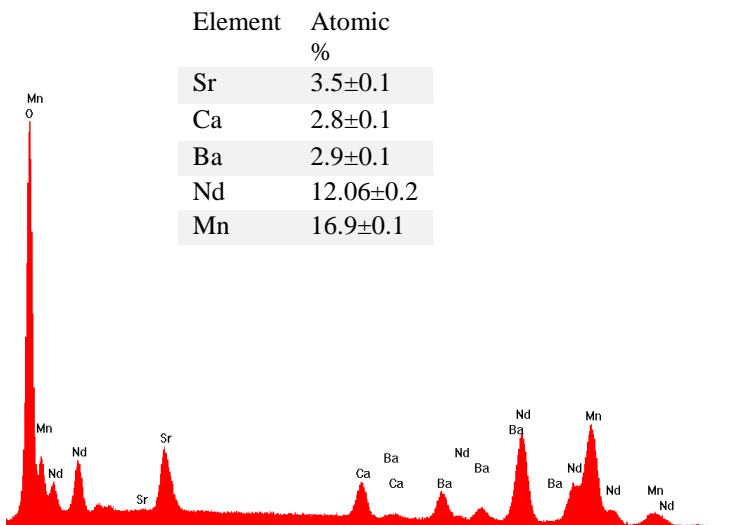
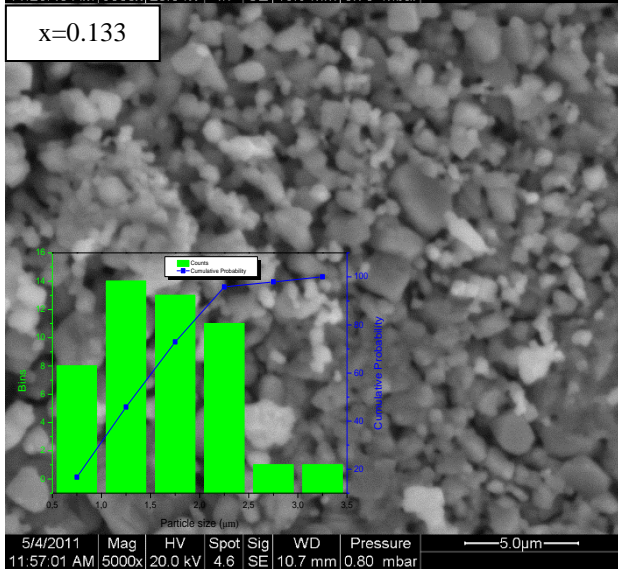
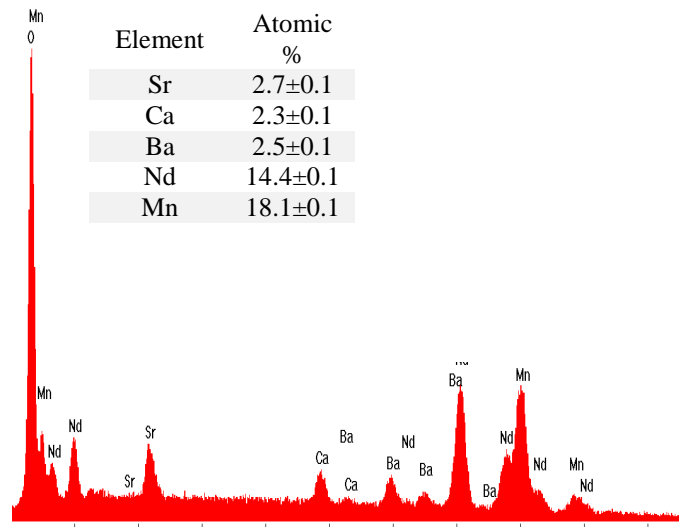
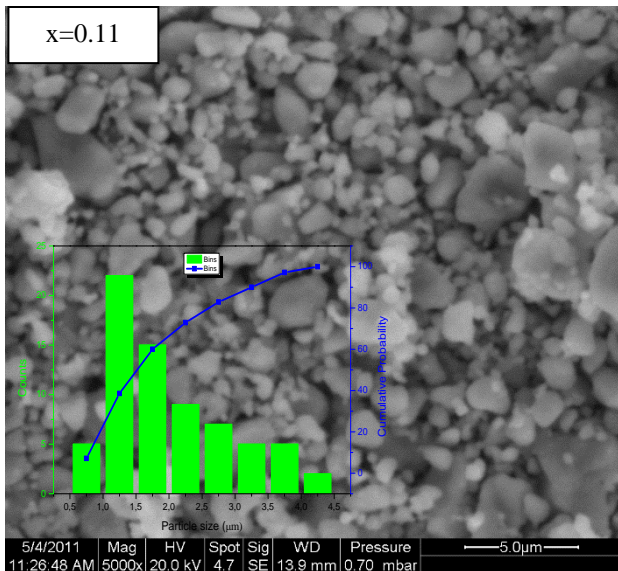


Fig.1

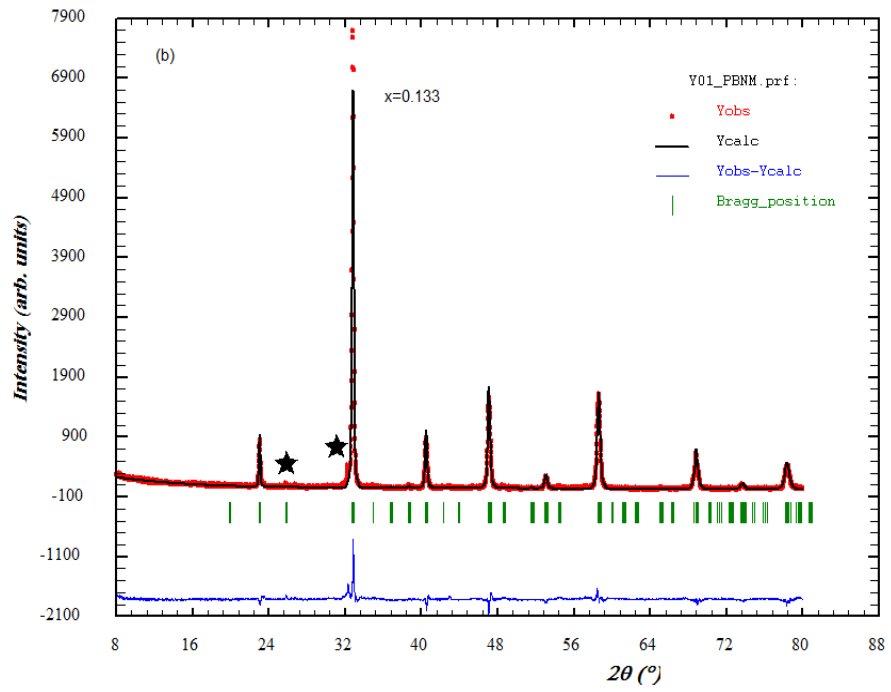
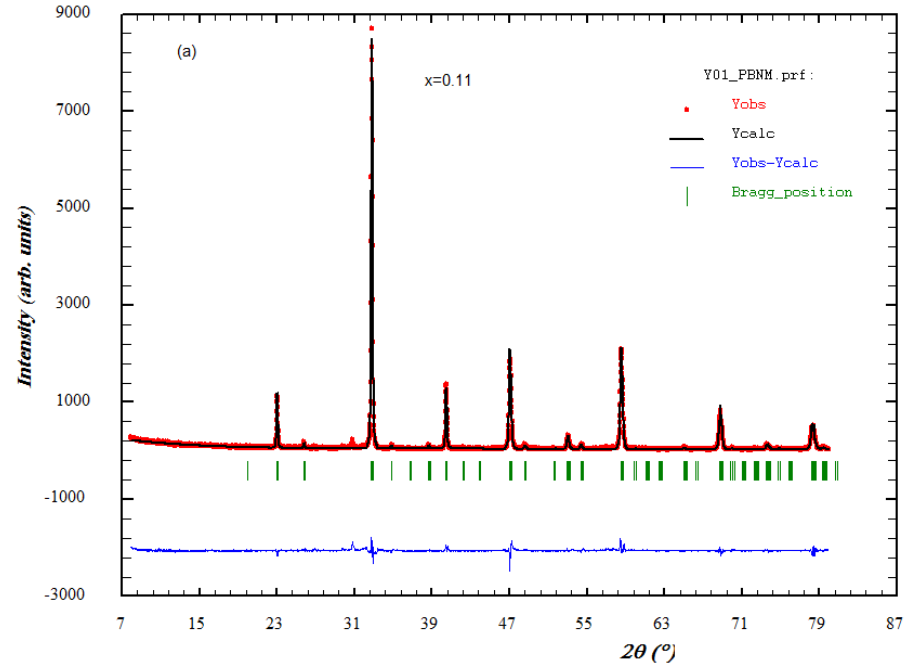


Fig.2

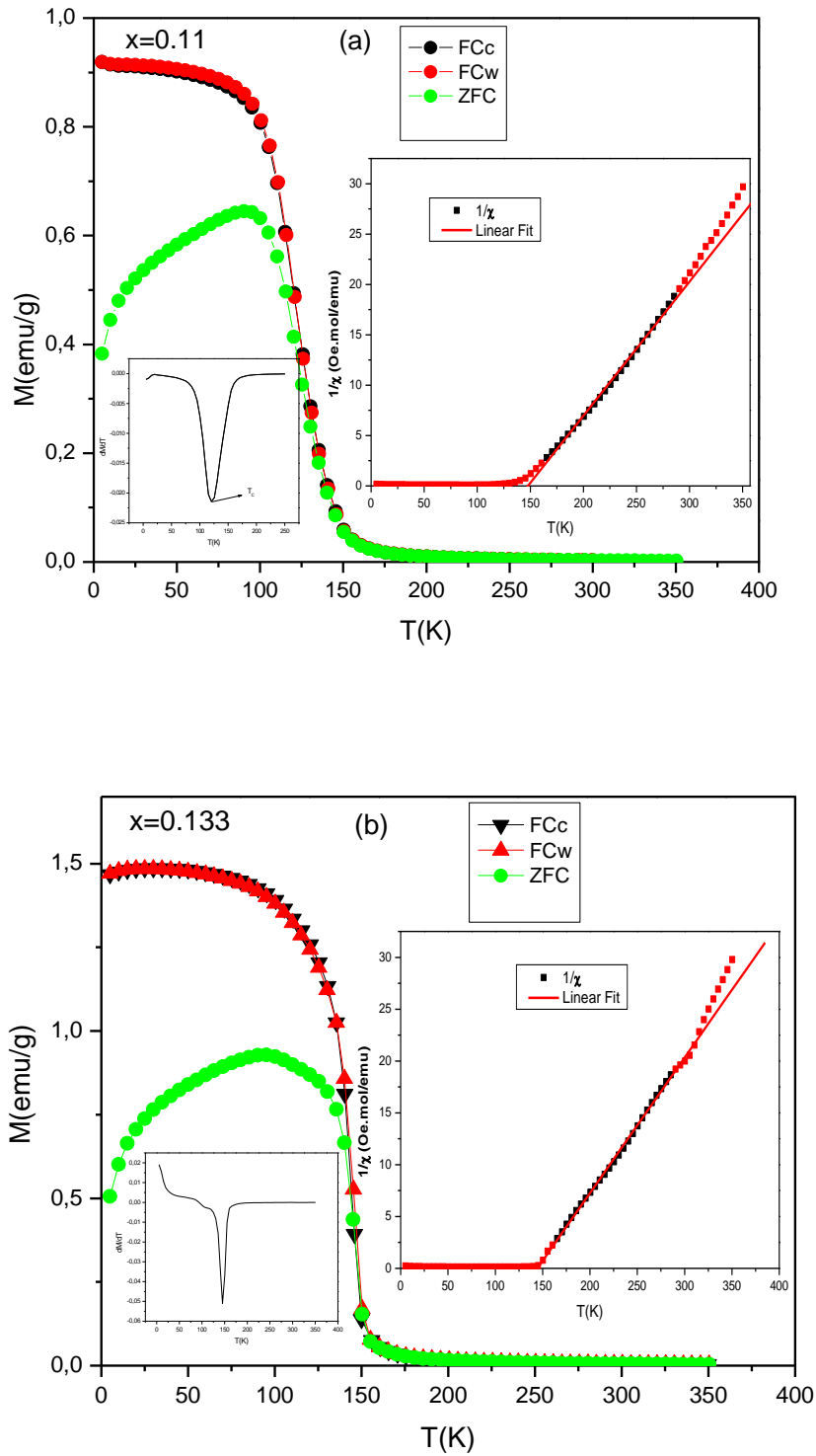


Fig.3

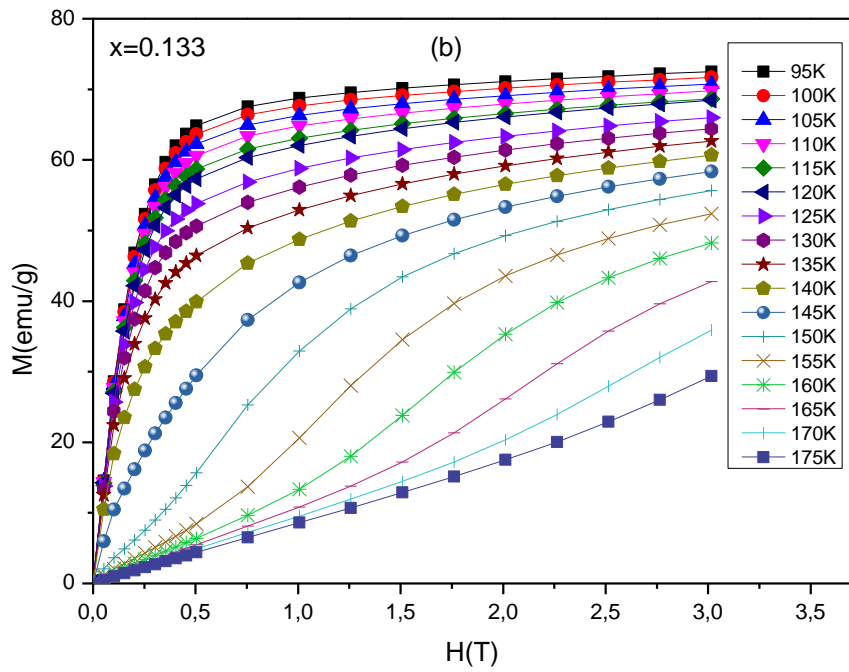
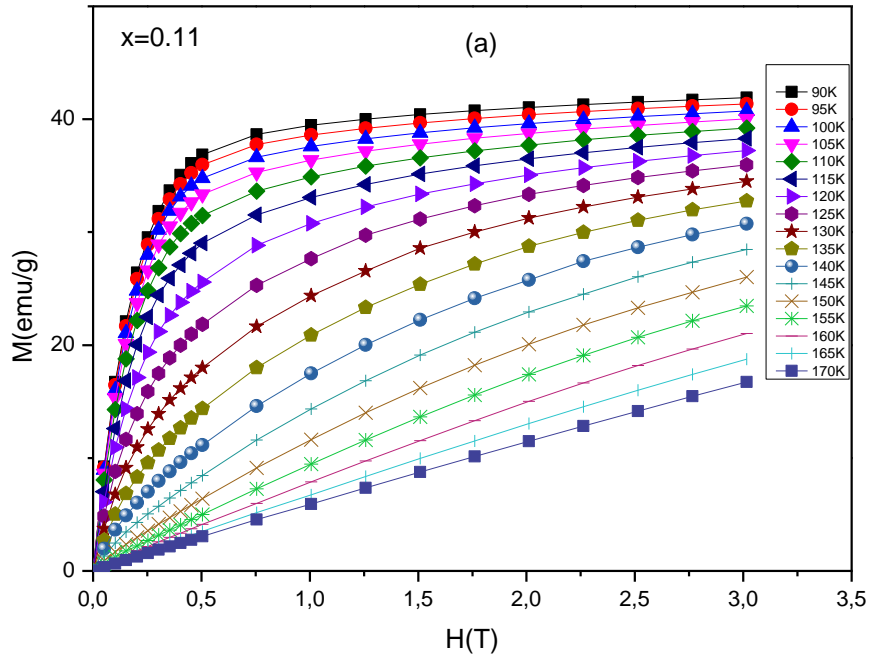


Fig.4

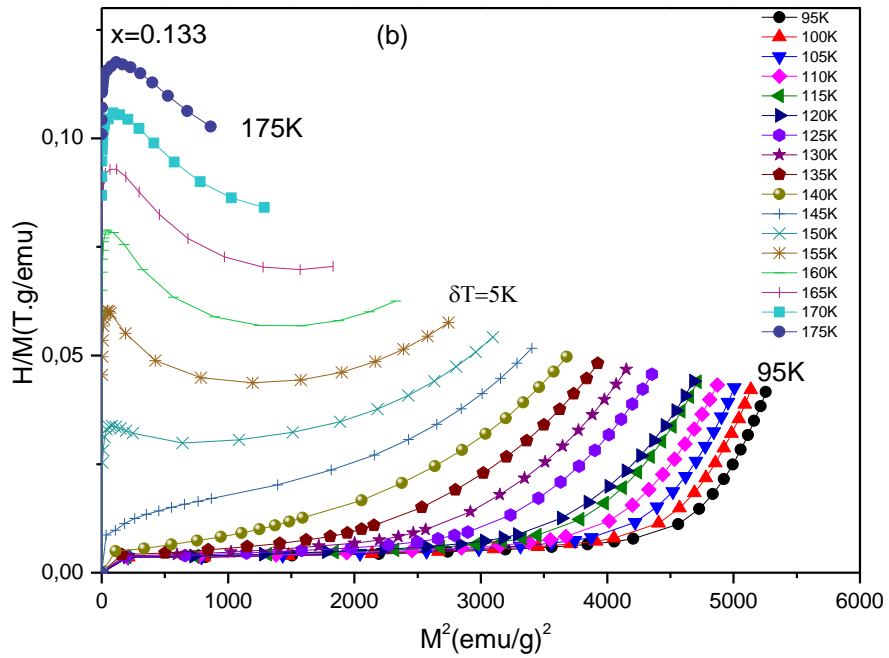
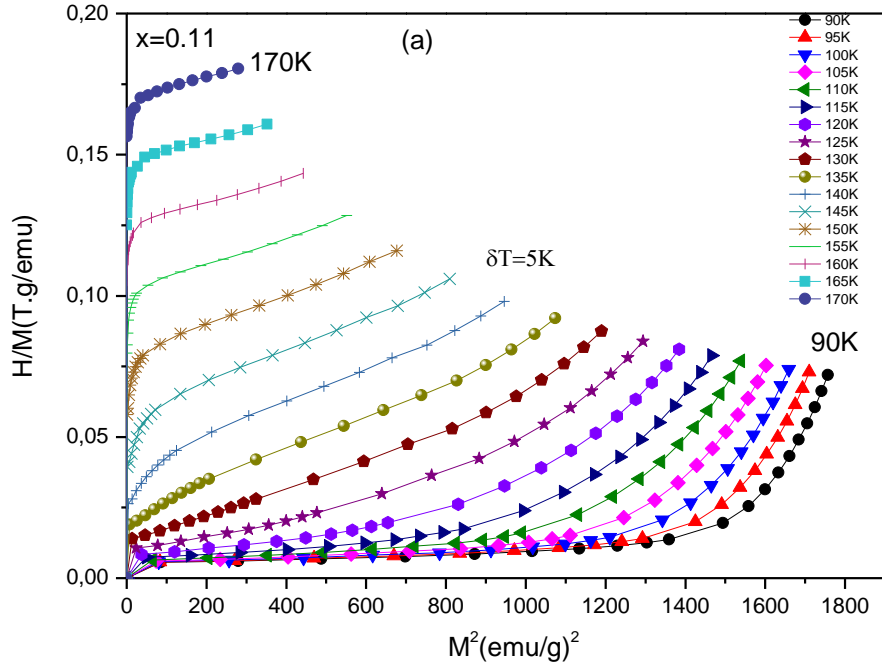
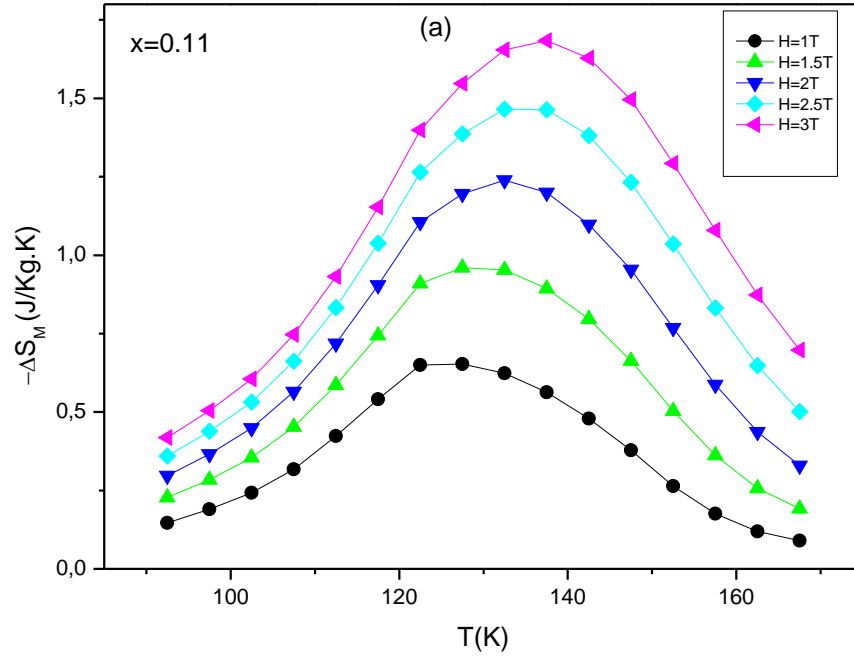


Fig.5



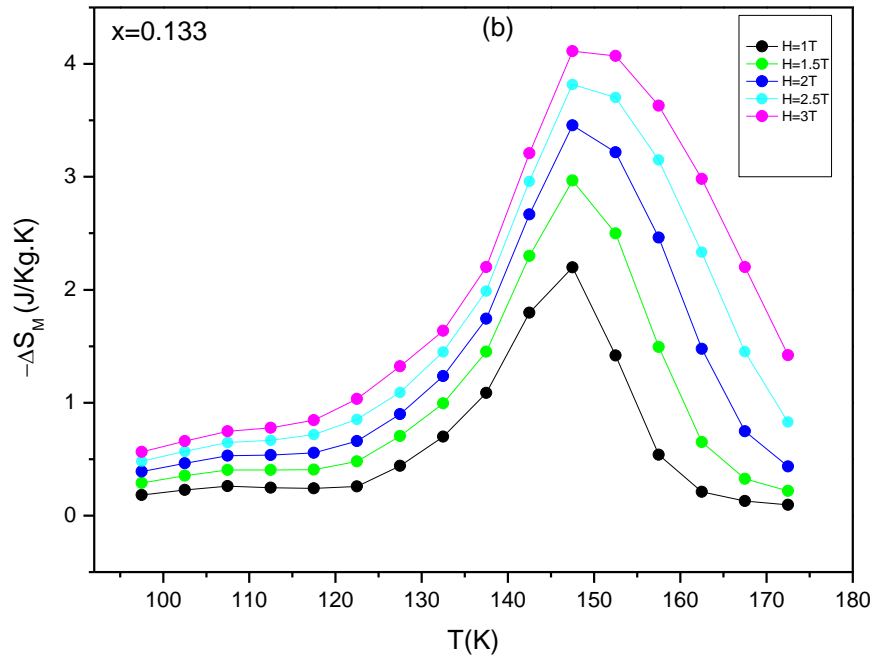


Fig.6

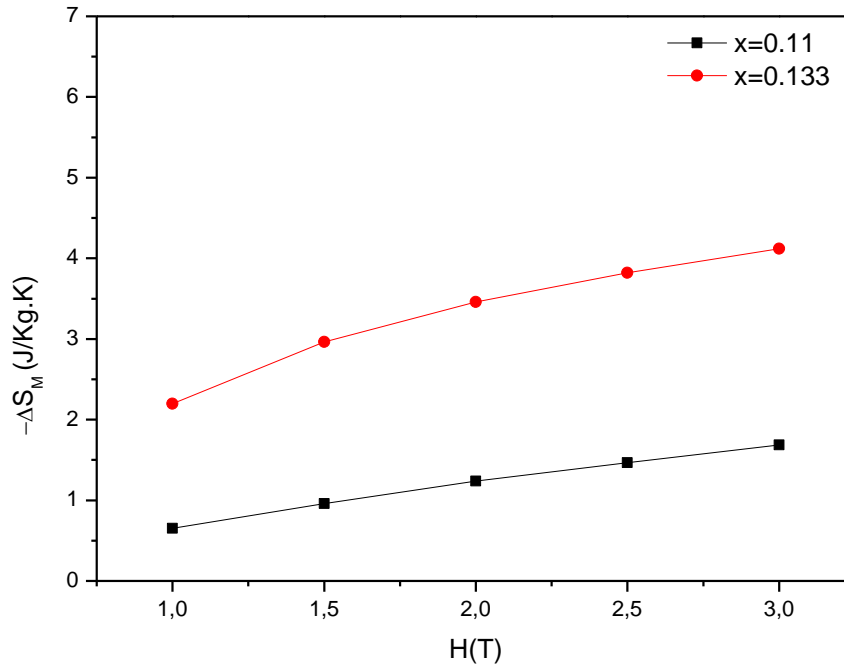


Fig.7

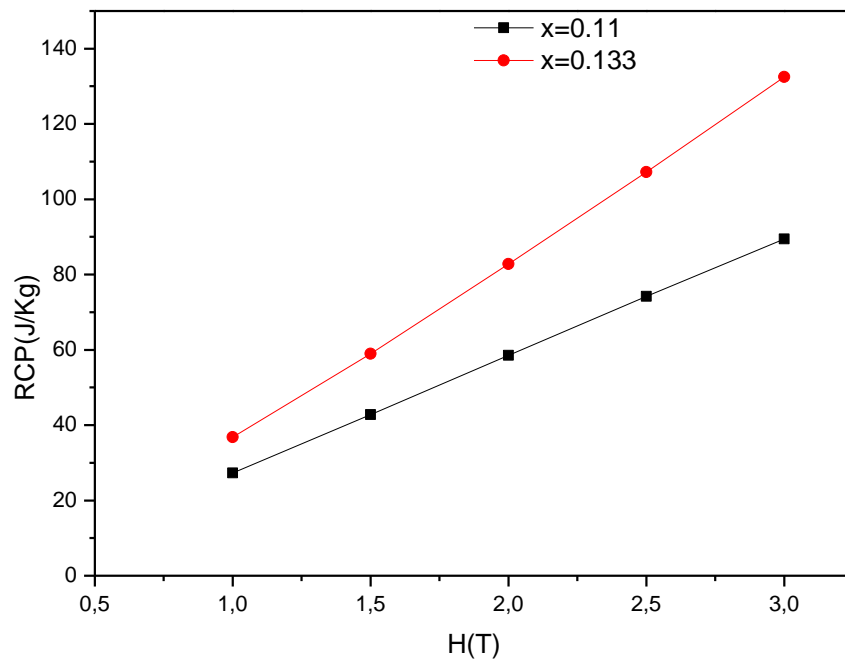


Fig.8

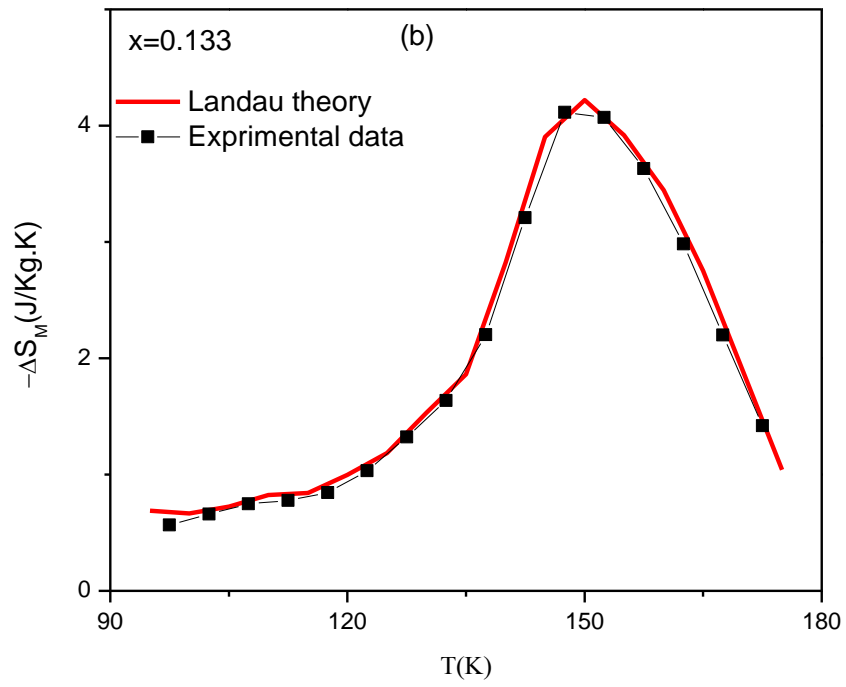
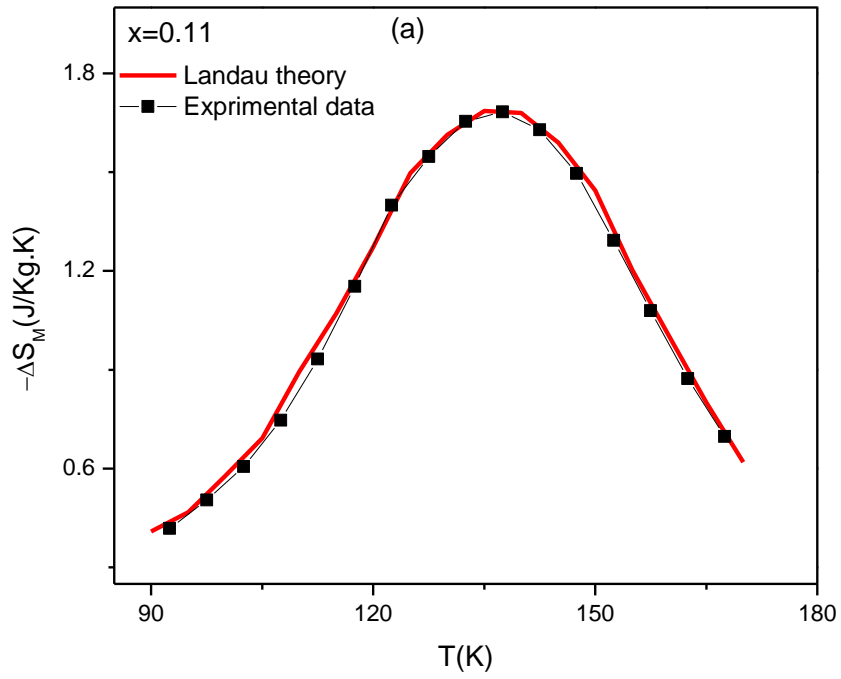


Fig.9

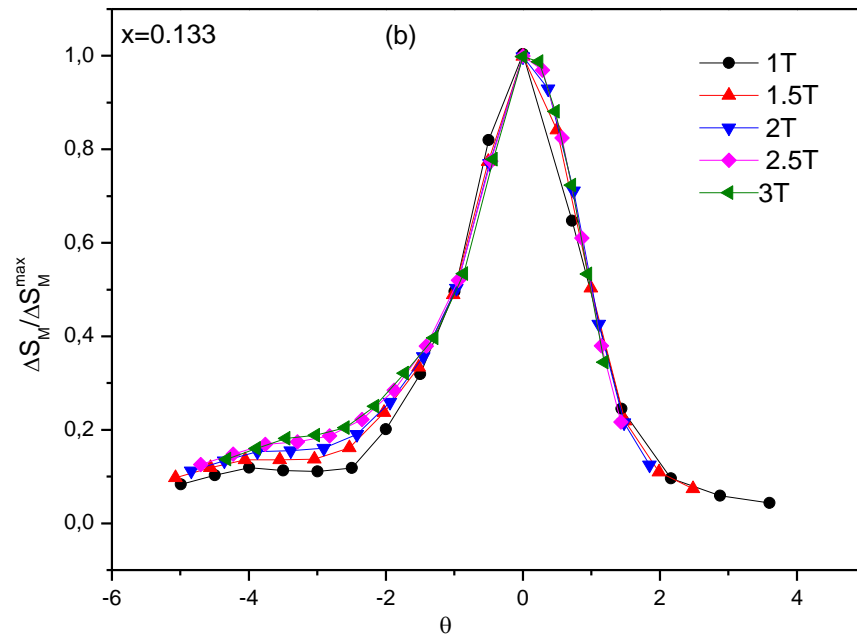
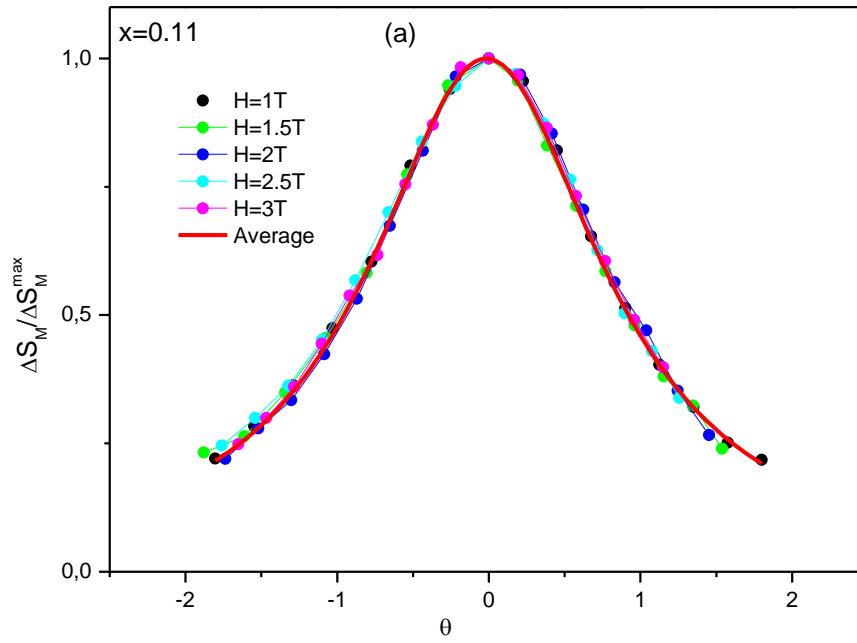


Fig.10