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Study and Characterization of Li and Co, Co-Doped ZnO Micro Structures

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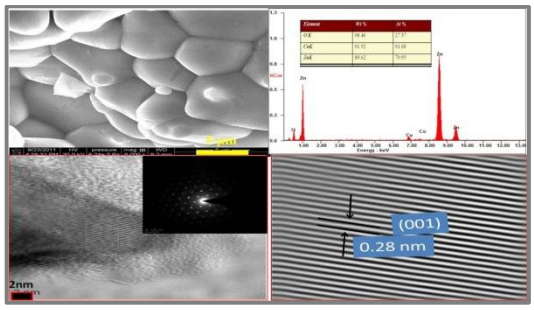
ABSTRACT

We report on the structural and morphological study of Li and Co codoped ZnO powder by solid state reaction route. X-ray diffraction studies show Li and Co codoped ZnO powder sample is phase pure and is in hexagonal wurtzite structure. Transmission electron microscopy and selected area electron diffraction (TEM and SAED) also confirms the wurtzite structure of Li and Co codoped ZnO powder sample.

Graphical Abstract



Highlights:

- Li and Co codoped ZnO powder samples are synthesized by solid state reaction method.
- XRD patterns reveal that the ZnO powder samples crystallize in hexagonal wurtzite structure.
- Shift in the peak position of high intense peak of Li, Co codoped ZnO powder indicates the substitution of Li and Co in ZnO.
- Scanning Electron Microscope (SEM) images reveals that Li, Co codoped ZnO powder has a spherical structured particle.
- HRTEM and SAED studies of Li, Co codoped ZnO powder sample revealed phase pure and is in wurtzite crystal structure

Keywords: ZnO, Codoping, p-type ZnO, XRD, HRTEM, SEM, EDS, SAED, DMS