This research synthesised zinc oxide (ZnO) structure by a hydrothermal method. ZnO samples were prepared using different molarities of zinc (Zn) precursor, ranging from 0.10 to 0.16 M. Structural and morphological properties were characterised by X-ray diffraction (XRD) and scanning electron microscopy (SEM). The SEM images show that the ZnO samples are randomly oriented with average diameters of 209, 325, 295 and 348 nm when using 0.10, 0.12, 0.14 and 0.16 M of the precursor, respectively. The XRD patterns show that all samples are prominently grown along the three diffraction peaks at (001), (002) and (101) planes. The average crystallite sizes for the ZnO structure with 0.10, 0.12, 0.14 and 0.16 M precursor are 48, 51, 49 and 31 nm, respectively.