This work proposes a simple method for the copper oxide nanostructures based on simple heating method under ambient conditions. Polyethylene glycol (PEG) is employed as a structure directing agent in driving the morphology and phase transformation. Typically, Copper oxide nanoparticles of size below 100 nm were synthesized at temperature around 600ºC. The morphology and mechanism were studied by scanning electron microscopy and energy dispersive X-ray spectroscopy. Interestingly this work demonstrates the structural phase transformation of tenorite (CuO) to cuprite (Cu2O) upon addition of different amount of PEG (say 4 g, 8 g, 12 g) and then heat treating at 600ºC.


Keywords: nanoparticles; tenorite; cuprite; phase transformation; structure directing agent.