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 600°C. 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 600°C.


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