ABSTRACT

The iron oxide nanoparticle was encoated with starch derived from *Colocassia esculanta* (Prof. B. K. Konwar). The starch coated nanoparticle was loaded with the medicinal component, quercetin dihydrate. The encoated nanoparticle was characterized using various techniques like Light microscopy, SEM, EDS, FT-IR. These techniques confirmed the encoating of the iron oxide nanoparticles with starch and quercetin dihydrate. The encoated sample retained the iron oxide intact without any distortion which is confirmed by XRD. The elemental analysis of the encoated sample was confirmed by EDS and the compositional analysis of the encoated sample was done by FT-IR. The magnetic property of the sample was confirmed by hysteresis loop for the sample. The encoated sample possessed antioxidant property due to the presence of quercetin which is an antioxidant as ascertained by DPPH scavenging assay. The sample also showed anti- haemolytic activity hence is safe to be used for wound and bruise healing.

Keywords: Iron oxide nanoparticle, Quercetin dihydrate, antioxidant, DPPH, Starch.