The present invention provides a method for extraction of biomolecules preferably protein by magnetic particles. Magnetic particle is preferably uncoated bare magnetic particle. The present invention also provides a process for the extraction of protein by steps of addition of magnetic particle into biological system, application of external magnetic field, collection of protein magnetic particle pellet, resolubilization and finalization of collecting solubilized protein and for drug extraction the step includes resuspension of the collected supernatant in mobile phase. The magnetic nanoparticle is synthetic analogues of any suitable magnetic material or combination of materials, such as magnetite, ulvospinel, hematite, ilmenite, maghemite, jacobsite, trevorite, magne sino ferrite, pyrrhotite, greigite, troilite, goethite, lepidocrocite, feroxyhyte, iron, nickel, cobalt, awaruite, waiaurite, or any combination thereof. It is also being made up of transition metal such as iron, manganese, nickel, cobalt, zinc, etc. The magnetic nano particles are various sizes and shapes.