SELECTIVE IMAGING AND MONITORING OF PHOTO-THERMAL PROCESS OF DRUG RESISTANCE BACTERIA USING DIFFERENT SHAPE GOLD NANO STRUCTURES

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Abstract: In present days drug resistant bacteria (DRB) become a great challenge in the environmental and public health. According to the National Antimicrobial Resistance Monitoring System (NARMS), several *Salmonella typhimurium* bacteria strains are resistant to at least five of the most widely used antibiotics. Worldwide 16 million people are infected with typhoid due to *Salmonella* bacteria. As a result, there is an urgent need for selective imaging and photo thermal nanotherapy of DRB. Gold nanoparticles of different shapes with optical properties tunable in the near-infrared (NIR) region have been exploited for the selective imaging and hyperthermic destruction of bacteria. Here in, we have demonstrated that gold nanomaterial based NSET can be used for on-site monitoring of nanotherapy response during therapy process of tetracycline, amoxicillin resistance salmonella bacteria. Our experiential data indicate a nice linear plot between % of bacteria death and Raman intensity change, which clearly shows that it is highly feasible to use NSET assay for the measurement of in-situ nano-therapy response during therapy process.