EXTENDED ABSTRACT

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Highly effective of stabilized silver nanocatalyst of ibuprofen and paracetamol drugs for the degradation of heterogeneous doxycycline activity

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Abstract:
The formation of the Dox-Ag (0) NPs was monitored by using UV–Vis absorption spectroscopy which are confirmed the formation of Dox-Ag (0) NPs to exciting the typical surface plasma on absorption maxima at 404 nm. Transmission electron microscopy (TEM) confirmed the spherical morphology and monodispersed Dox-Ag (0) NPs with particle size 6.84 ± 2.2 nm.Doxycycline is a broad-spectrum antibiotic synthetically derived from oxytetracycline The drug is a second-generation tetracycline, exhibiting lesser toxicity than first-generation tetracyclines which are used to treat a wide range of bacterial infections, depending on the results of antibiotic susceptibility testing.Mycoplasmahominis, Escherichia coli, Pseudomonas aeruginosa and Gram-positive bacteria Staphylococcus aureus, Micrococcus flavus and Micrococcus luteus by the disk diffusion method. The antimicrobial results therefore reveal that newly synthesized Dox-Ag (0) NPs had an incredible catalytic and antimicrobial activity as a catalyst. The current findings are equally extendable for safeguarding the aquatic environment against the pollution caused by drugs and microbial activity via a facile, highly economical, rapid and efficient reduction/degradation method supported the catalytic potential of Dox-Ag (0) NPs.

Introduction:
Mr. Ajit Kumar Varma has obtained his B.Pharm from GautamBuddh Technical University(GBTU),Lucknow, And M.Pharm (Pharmaceutics) from Rajiv Gandhi ProudyogikiVishwavidyalaya (RGPV),Bhopal. He is currently working as a Asst. Professor at School of Pharmacy ,Lingaya's University, Nachauli-JasanaRoad,Old Faridabad,(H.R.),India. He has above four years of Pharmaceutical Industry and acedmic in good experience.He has been published various book on Practical manual of Pharmaceutics I,and text book of Physical Pharmaceutics II for B.Pharm First and Second year students respectively.He has attened several National and International Conferences/ /Workshops Seminars. He has credit in Nobel Researchers Awards as well as Young Scientist Awards and published several paper in International Journals, conferences and proceedings. He has been Editorial Reviewer member of several Journals as well as different Membership of Educational Society .

Many of pharmaceutical residues in water, wastewater, sludge and sediments are considered "emerging contaminants" even at ng l−1 levels owing to their adverse health effects. Analgesic drugs with quite 70 million global prescriptions annually are a special group of pharmaceuticals that exhibit "persistent toxic waste" character. Ibuprofen (IBP) and paracetamol are widely consumed analgesic drugs that are available without prescription and found commonly in domestic sewage as a persistent and environmentally stable pharmaceutical. Its existence in the water even at very small concentrations is a consequence of direct disposal from households and effluent discharge from municipal/industrial wastewater treatment plants. Moreover, multidrug resistance is a rising problem in the treatment of infectious diseases. The wide use of broad-spectrum antibiotics has led to resistance to traditional antimicrobial agents for several bacterial human pathogens and has created a serious threat to the worldwide health care. In this background, there is a need of a rapid, economic and highly effective method for the degradation of various pharmaceutical analgesic drugs as well as antimicrobial activity in wastewaters simultaneously.

Discussion and Conclusion:
number of methods are existing for the synthesis of Ag (0) NPs; hydrothermal, sonochemical, electron beam irradiation, extraction of leave, seed extract methods, and so on. However, the recovery of noble metal nanoparticles from such stabilizers-containing systems is not easy. As compared to these synthesis routes, one of the recyclable, effective, green, cheaper and simplest methods for the synthesis of Ag (0) NPs is the use of antibiotic as reducing and capping agent. Previously, silver nanoparticles were synthesized and used as a catalyst for the degradation some nitro-compounds. Whereas in the present work we applied analgesic drugs as model compound to monitor the catalytic efficiency of fabricated Dox-Ag (0) NPs.

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