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Synthesis of Pantoperazole@AgNPs and Pantoperazole sulfide@AgNPs and Considering Their Antibacterial Properties

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ABSTRACT

Nanotechnology is capable of fabricating, controlling, and using nanoscale materials. New science for human life and health has produced many active substances that use these materials, usually because of the inability to transfer them to the desired target at the right time and in the right amount, does not have to be effective. This will cause them to be wasted and unwanted side effects and the re-use of these active ingredients will be required to achieve the desired effect.
Surface composition and design of nanoparticles can successfully use In industrial and research fields, such as purification of contaminated water, biological separation, therapeutic and therapeutic applications, and controlled release and targeted drug. Omeprazole, lansaperazole, ropiperazole pantoprazole and pantoprazole sulfide are an selective inhibitor of gastric acid secretion and proton pump inhibitors and irreversibly linked to H^+ / K^+ -ATPase (proton pump) and are the strongest inhibitor of gastric acid secretion, as the final phase in Inhibit the acid production cycle. The effect of these drugs is dose-dependent in controlling the secretion of the primary and stimulated stomach acid.
Pantoprazole and pantoprazole sulfide are drugs that were studied and tested in this study. To increase the antibacterial properties, they were capped on silver. The synthesis of these nano sized drugs on silver nanoparticle was verified by bacterial testing.

Keywords: Silver nanoparticles, Pantoprazole, Pantoprazole sulfide, Novel drug delivery, Gastric ulcer, Pantoperazole@AgNPs, Pantoperazole sulfide@AgNPs

1. INTRODUCTION

A solution of 0.082 g of $AgNO_3$ in 10 mL water was added to 0.03 g of PVP in 5 mL water. A solution was allowed to remained in the ice bath- room for 30 min. Then remove a solution from ice bath-room and to this was added 0.018 gr $NaBH_4$ in 6 mL ethanol solution drop by drop, that led to the sudden change of color solution from yellow to brown and finally to black solution. After $NaBH_4$ fully was added for period of 30 min. Subsequently the amount of 0.331 mmol pantoprazole in 10 mL EtOH was added to the mixture solution and allowed to react for 4 h. After this time the solution was centrifuge and washed with distilled water for removing impurities and extra EtOH. The resulting precipitation, was separated, dried and made ready for identifiation.

2. RESULT AND DISCUSSION:

The TEM of Pantomeprazole@AgNPs image reveals that particles are spherical shape with approximate size of < 30 nm.