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EVALUATION OF THE BACTERIOSTATIC EFFECT OF CHITOSAN SPHERES CONTAINING AMINOGLYCOSIDES

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The search for alternative routes that enable the application of drugs with certain specificities, such as high toxicity, quick metabolism, narrow therapeutic range and the drugs used in long-term therapeutic treatments considerably broadened the studies of the pharmaceutical area, highlighting the controlled delivery systems. These systems exhibit advantages compared to conventional treatments, with higher effectiveness, acceptance and low toxicity. The usage of polymeric materials such as chitosan greatly enhances the controlled drug delivery system due to its biocompatibility and biodegradability. This work aimed to prepare chitosan spheres (CS) with gentamicin sulfate (CSG) and chitosan spheres with amikacin sulfate (CSA), using the coagulation method in two conditions: sodium hydroxide solution (NaOH) and sodium tripolyphosphate solution (TPP). The resulting spheres were immersed in the aminoglycoside solution and then dried at 30ºC in a forced circulation oven during 24h. The antimicrobial evaluation was carried out by sensibility test with the agar diffusion disk method using Staphylococcus aureus ATTCC 25922 and Eschericia coli ATTCC 25923 strains. The results indicate that the chitosan spheres immersed in the solutions containing the aminoglycosides showed an inhibition zone in the range of 2.1 cm to 2.8 cm above controls disks (2.0 cm) indicating effect bacteriostatic. Among the conditions the spheres obtained in the TPP solution has the highest inhibition halos for both aminoglycosides.