

**FORMULATION, CHARACTERIZATION AND  
EVALUATION OF WAFER CONTAINING ANTIMICROBIAL  
AGENT FOR WOUND INFECTION**

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**To**

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WAFER CONTAINING ANTIMICROBIAL AGENT  
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## **Abstract**

The aim of present research work is to formulate wafer containing antimicrobial agent for wound infection. Wound is an infectious diseases which can be the result of colonization of the body by various microorganisms. The main microorganisms on skin are gram-positive cocci (probably staphylococci e.g. Methicillin resistant staphylococcus aureus). The formulation has sustained release of vancomycin hydrochloride with antibacterial effect at wound site. The wafer containing antimicrobial agent was prepared by lyophilization method. FTIR was performed to study drug-excipient compatibility. Analytical method was developed by UV-spectroscopy. Optimization of formulation was done by 3<sup>2</sup> full factorial design. Wafer containing antimicrobial agent was evaluated for viscosity, % drug content, swelling capacity, water uptake study, *In-vitro* % cumulative drug release study, scanning electron microscopy (SEM), *In-vivo* wound healing study. Drug content and swelling capacity of optimized batch A3 were 98.06±0.053 % and 852.23± 0.036 % respectively. The % cumulative drug release of optimized batch A3 was 93.78±0.28% up to 16 hrs. Stability study data of optimized batch A3 showed, wafer was stable at accelerated condition (40°C± 2°C and 75± 5 % RH) after 2 months. From the

result it was concluded that the wafer containing antimicrobial agent had maximum drug release in 16 hrs with good wound healing effect as well as good stability. This research work proves that the optimized wafer formulation containing vancomycin hydrochloride is potential drug delivery device against wound infection.

**Keywords:** Antimicrobial agent, wafer, lyophilization, wound infection