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## Antibacterial Effectiveness of Chloramphenicol Ophthalmic Hydrogel Against *Pseudomonas Aeruginosa* ATCC 9027 and *Streptococcus Pyogenes* ATCC 19615

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### ABSTRACT

Sterile ophthalmic hydrogel is the development of conventional eye products that slowly releases the drug to increase its bioavailability, corneal permeability, and better drug retention time compared with eye drops as well as eye ointments. Chloramphenicol is a broad spectrum antibiotic that inhibits the growth of *Pseudomonas aeruginosa* and *Streptococcus pyogenes* causing conjunctivitis. The aim of this study was to determine the effectiveness of antibacterial activity of chloramphenicol in ophthalmic hydrogel preparations against *P.aeruginosa* ATCC 9027 and *S.pyogenes* ATCC 19615 comparing with eye drops dosage form. The results showed that the effectiveness of antibacterial activity of chloramphenicol ophthalmic hydrogel preparation compared with eye drops dosage form was 1 : 1.179 ppm for *P.aeruginosa* and 1 : 1.145 ppm for *S. pyogenes*. Minimum inhibitory concentration of ophthalmic hydrogel against *P. aeruginosa* was 156.25 to 312.5 and 78 to 156.25 µg/mL for *S. pyogenes*. Minimum bactericidal concentration of ophthalmic hydrogel against *P. aeruginosa* was 312.5 to 625 µg/mL and 78 to 156,25 µg/mL for *S.pyogenes*. The effectiveness of antibacterial preparations in chloramphenicol eye hydrogel was better compared to the form of eye drops preparations.

**Keywords:** ophthalmic hydrogel, chloramphenicol, *Pseudomonas aeruginosa*, *Streptococcus pyogenes*, minimum inhibitory concentration, minimum bactericidal concentration.

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