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**POLYMER BASED ANTIMICROBIAL HERBAL ESSENTIAL OIL COATINGS AS
POTENTIAL URETHRAL BIOMATERIAL: PREPARATION -IN VITRO –EX- VIVO
CORRELATION**

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Objectives: Approximately 75-80% UTIs acquired in the hospital are associated with Urinary Catheter which is a tube inserted into the bladder through the urethra to drain urine. Long-term catheterization may be used to manage intractable urinary problems According to the WHO, antimicrobial resistance takes place while microbes exchange interaction upon introduction to synthetic antimicrobial drugs. This reasons them to develop resistance and as an end result, infections do no longer forestall. Antibiotic resistance has brought about the formation of “superbugs” that are repellent against many antimicrobial remedies that has complicated the various infections

Methods: To prevent the infection caused by the infective bacteria like *Proteus mirabilis* we need to coat the catheter with suitable polymer such as Eudragit L 100 & PLGA along with the herbal antimicrobial drug formulation. The antimicrobial impregnated with the polymer may release during catheterization & kill the UTI causing bacteria. In the present investigation a catheter was coated both inside & outside using synthetic polymer in combination with herbal antimicrobial. The coated catheter was evaluated for its utility in a Glass bladder model (in-vitro) to test the effect of released drug on UTI bacteria & encrustation of catheter for 4-5 days.

Results: The experimental results revealed that 90-95% bacteria were killed & stability of the catheter was enhanced to about 80-90%. Drug release profiles and distribution in the polymer, and surface analysis were also carried out and the process had no deleterious effect on the mechanical performance of the catheter or its balloon The antimicrobial catheter therefore offers for the first time a means of reducing infection and its complications in long-term urinary catheter users.

Conclusions: The antimicrobial catheter therefore offers for the first time a means of reducing infection and its complications in long-term urinary catheter users.

catheter bridge model



Antimicrobial activity

