Indian Journal of Basic and Applied Medical Research; June 2015: Vol.-4, Issue- 3, P. 375-387

**Original article**

**Effect of Terminalia chebula, Trikatu formulation and their combination on Staphylococcal biofilm**

**Dr. Sandeep P. Narwane1, Dr. Rajendra B. Pawade2, Dr. Nirmala N. Rege3, Dr. Pooja Thakkar4**

1Assistant Professor, 2Associate Professor,Dept. of Pharmacology, Rural Medical College of Pravara Institute of Medical Sciences (DU), Loni, Maharashtra, India.

3Professor, Dept. of Pharmacology & Therapeutics, 4Assistant Professor,Dept. of Microbiology, Seth G.S. Medical College, Mumbai, India

**Correspondence author:** Dr. Sandeep P. Narwane

**Abstract:**

**Introduction:** The present study evaluates Terminalia chebula, Trikatu formulation and their combination for their inhibitory effect on biofilm formed by Staphylococci.

**Methodology:** Clinical isolates of Staphylococci were screened for their biofilm forming activity by Congo red agar, Tube and Tissue culture plate (TCP) method. Two strongly biofilm forming strains along with a standard biofilm forming strain (ATCC 35984- Staph. epidermidis) were selected to study the plant extracts by TCP method. Aqueous extracts of the Terminalia chebula, Trikatu and their combination with various concentrations were added to the inoculate during incubation and also after 24 hrs of incubation in separate assay systems. 24 hrs after incubation with the test drugs, the biofilm was quantified.

**Results:** None of the study drugs showed any effect on Staphylococci in biofilm state. TCh showed significant prevention of biofilm formation at the concentrations of 200, 400 and 800 µg/ml. The Combination showed significant prevention of biofilm formation at the concentrations of TCh and Tr: 100 + 50, 200 + 100 and 400 + 200 µg/ml. The combination showed significantly better biofilm prevention as compared to TCh.

**Conclusion:** Though the study drugs did not show any effect on Staphylococci in biofilm state, TCh and combination could prevent biofilm formation. Tr enhanced the biofilm formation preventing property of TCh, thus showing synergism. Further evaluation with the various constituents of these plant drugs is required.

**Keyword:** Staphylococci, Biofilms, Antibiotics