

## Effectiveness of Malva Sylvestris Extract on Biofilm Formation in Pseudomonas Aeruginosa PTCC:1430

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**Background & Objectives:** Biofilm formed by *Pseudomonas aeruginosa* have been shown to be an important factor in the increased antibacterial resistance and pathophysiology of chronic rhinosinusitis (CRS) and cystic fibrosis (CF). The aim this study was to evaluate the inhibitory effects of Malva sylvestris extracts on the biofilm formation of *Pseudomonas aeruginosa*.

**Methods:** Different extracts of the plants parts were dissolved in DMSO, membrane filter (pore size 0.45  $\mu\text{m}$ ) sterilize. The minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) were tested by microdilution methods. The effect of plant extracts on the attachment phase of biofilm formation was measured using PVC biofilm formation assay.

**Results:** The MIC and MBC of M. sylvestris extracts on the tested microorganism were 62.5 mg/ml. M. sylvestris different concentration contain 0.195 mg/ml, 0.39 mg/ml, 0.78 mg/ml, 1.57 mg/ml, 3.12 mg/ml, 6.25 mg/ml, 12.5 mg/ml, 25 mg/ml, 50 mg/ml caused a 53%, 72%, 85%, 89%, 89%, 90%, 95%, 99%, 99.4% decrease in biofilm formation respectively in P. aeruginosa. There was a significant decrease in biofilm formation when P. aeruginosa was grown in the presence of M. sylvestris when compared to the control (P value = 0.0124).

**Conclusion:** Malva sylvestris is effective in killing P. aeruginosa bacterial biofilm. the intriguing observation may have important clinical implications and could lead to a new approach for treating refractory CRS and CF.

**Keywords:** Pseudomonas aeruginosa; MIC; MBC; Biofilm Formation; Malva Sylvestris