

*Pseudomonas aeruginosa* an opportunistic pathogen is responsible for severe chronic infections in immunocompromised individuals and in patients with chronic respiratory diseases. Once infection is established, it is virtually impossible to eradicate the bacteria from lungs of the patients due to selection of antibiotic resistant mutants during long and severe chemotherapy treatments. In this study, effects of the mixture of extracts of *Acorus Calamus* and *semecarpus anacardium* were investigated against chronic *P. aeruginosa* lung infection in rats. Recovery of weight lost during infection, eradication of bacteria from the lungs, decreased inflammation and regeneration of alveolar walls were the prominent features observed after the treatment. The results show beneficial effects of the extracts with the possibility of a new therapeutic approach where drug formulations have multiple effects on different targets which would include antibacterial and anti – inflammatory activity, free radical scavenging effects and maintaining the in situ antioxidant systems such as glutathione by restoring its associated enzymes to minimize the damage due to free radicals. However further work has to be done to separate, characterize and determine the application of active components as therapeutics agents.