The anti-bacterial potential of Siddha Herbo-mineral formulation *Linga Chenduram* through the In-vitro study

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Many existing antibiotics have limitations regarding their effectiveness against various pathogens and often cause adverse side effects. Overuse of these antibiotics has led to the emergence of drug-resistant microorganisms. The Siddha system of medicine offers promising potential for combating these resistant pathogens. *Linga Chenduram* (LC), a traditional herbal-mineral preparation mentioned in the ancient Siddha text *Anuboga vaithiya navanitham*, was the focus of this study. The aim was to compare the antimicrobial effectiveness of LC against various pathogens. Anti-bacterial activity of the sample was tested for *E coli* (ATCC 25922*), Pseudomonas aeruginosa* (ATCC 27853) and *Staphylococcus aureus* (ATCC 25923) to determine the diameter of inhibition zone (DIZ), minimum bactericidal concentration (MBC) and minimum inhibitory concentration (MIC). The study results demonstrate that a concentration of 1000 µg/mL of LC significantly inhibited the growth of all tested organisms. The minimum bactericidal concentration was 250 µg/mL, which was effective against E. coli (14.2 x 10^3 CFU/mL), Pseudomonas aeruginosa (4.8 x 10^3 CFU/mL), and Staphylococcus aureus (1.65 x 10^3 CFU/mL). The minimum inhibitory concentration (MIC) at which 50% of the bacteria were inhibited (MIC50) was 405.584 µg/mL, 459.61 µg/mL, and 515.575 µg/mL for E. coli, Pseudomonas aeruginosa, and Staphylococcus aureus, respectively. Based on these results, it can be concluded that *Linga Chenduram* (LC) exhibits promising antibacterial activity against *E. coli*, *P. aeruginosa*, and *S. aureus*. This suggests its potential as a natural alternative or adjunct therapy for infections caused by these pathogens

Keywords*: Linga Chenduram, Anti-bacterial, E coli, Pseudomonas aeruginosa and Staphylococcus aureus.*