

## Potassium aluminium sulphate (Alum) inhibits growth of human axillary malodor producing skin flora in vitro

### ABSTRACT

**Introduction:** Axillary malodor is caused by microbial biotransformation of non-smelling molecules present in apocrine secretions, into volatile odorous molecules. This study aimed to determine the antimicrobial activities of potassium aluminium salts (alum) against four malodor-producing axillary bacterial flora, as an alternative natural product for reducing axillary malodor. **Methods:** The antimicrobial activity of alum against axillary bacterial flora [*Micrococcus luteus* (ATCC 49732) (*M. luteus*), *Staphylococcus epidermidis* (ATCC 14990) (*S. epidermidis*), *Corynebacterium xerosis* (ATCC BAA-1293) *C. xerosis* and *Bacillus subtilis* (ATCC 19659) (*B. subtilis*)], was tested in vitro using broth dilution method for different concentrations (0.937 – 20mg/mL) on Luria-Bertani broth. Subculture was done to determine colony-forming units (CFUs) and the minimum inhibitory concentrations (MICs). **Results:** Alum showed excellent inhibitory effects on all tested bacteria. The lowest MIC of alum was against *C. xerosis*, at 1.88 mg/mL. *M. luteus*, *B. subtilis* and *S. epidermidis* showed a higher MIC of 3.75, 5.00 and 7.50 mg/mL, respectively. All of the tested bacteria were completely inhibited at a concentration of 7.50 mg/mL. **Conclusions:** This study revealed that alum has excellent antimicrobial effects against axillary malodor -producing bacteria and is recommended to be used either directly by topical application or as an active ingredient in deodorants and antiperspirants.