**Abstract**

Background: Fusidic acid (FA) is a staphylococcal antimicrobial agent with focused Gram-positive activity (skin and skin structure infections) which acts by preventing bacterial protein synthesis. FA in vitro activity was most pronounced against the staphylococci. A more limited activity was observed against the streptococci and anaerobes with MIC values ranging from 0.5 to 8 µg/ml.

**Materials and Methods**

A total of 114 Gram-positive and -negative organisms were susceptible tested against fusidic acid to determine the spectrum of FA activity. These bacterial isolates included 27 species of Gram-positive cocci, 20 species of Gram-negative bacilli, five species of fastidious anaerobes, 17 genera of Gram-negative non-fermentative bacilli, four species of fastidious anaerobes, four species of Enterobacteriaceae, three species of Pseudomonas, and two species of Moraxella. MICs were determined by broth microdilution checkerboard trays (MHB) were used to determine MICs of FA in vitro activity tested against five Gram-positive aerobic strains, eight Gram-positive anaerobic strains, and 17 genus groups of Gram-negative non-fermentative bacilli in the presence of 10% human serum proteins. All QC results were within published limits.

**Results**

- The fusidic acid MIC values for Gram-positive aerobic agents with the lowest values for *S. aureus* (0.25 µg/ml). Fusidic acid MIC ranges for Gram-positive aerobic agents included 25923 (a) and gentamicin against *S. aureus* ATCC 29213.
- Most fusidic acid activity was observed against enterococci, streptococci and other relatively isolated Gram-positive pathogens with MIC values of 2 to 12 µg/ml. The combination did not achieve adequate activity against *Staphylococcus aureus* (MICs ≥ 8 µg/ml).
- Fusidic acid showed limited activity against *Staphylococcus aureus* and *Streptococcus agalactiae* with MIC values of 8 to 32 µg/ml.
- Fusidic acid was more active against Gram-negative aerobic strains with MIC values ranging from 0.5 to 8 µg/ml compared to Gram-negative non-fermentative species with MIC values of 8 to 16 µg/ml.
- The concentration interaction category (MIC4 values) for fusidic acid/streptokinase studies. Results of 16 and 24 hours incubation were used to determine the fractional fungicidal combination of fusidic acid/penicillin for *Staphylococcus aureus* ATCC 29213 (1/10).
- All organisms showed "partial synergy or additive interactions for the fusidic acid/three drug combination, and of 5 of 19 organisms with the fusidic acid/gentamicin combination showed improved activity (5 additive)." Table 3 shows increased killing of fusidic acid/gentamicin combination compared to the best single agent

**Conclusions**

- The spectrum of fusidic acid activity is limited to some Gram-positive bacteria, including staphylococci, micrococci and *Coagulase-negative staphylococci*. including *methicillin* resistant *S. aureus*. Fusidic acid demonstrated potent GP activity, especially against the staphylococci. A more limited activity was observed against the streptococci and anaerobes with MIC values ranging from 0.5 to 8 µg/ml.

**References**


**Update on the Spectrum of CEM-102 (Fusidic Acid) Against Contemporary Wildtype Bacterial Species Including Mutational Resistance Analysis, and Synergy Testing**

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**Introduction**

Staphylococcus aureus is currently one of the leading threats to public health and one of the most important bacterial pathogens, including MRSA, resistant to common therapeutic agents. The development of new agents with focused Gram-positive activity, especially against the staphylococci. A more limited activity was observed against the streptococci and anaerobes with MIC values ranging from 0.5 to 8 µg/ml. This compound did not exhibit activity against aerobic Gram-negative bacilli. Fastidious pathogens included *Clostridium perfringens*, *Bacteroides fragilis*, and the anaerobes *Peptostreptococcus spp.*, *Peptococcus spp.*, *Campylobacter jejuni* and *Prevotella intermedia*. The MIC values for *Staphylococcus aureus* ATCC 29213 were 0.25, 1, 4 and 8 µg/ml, respectively.