**Effects of Varying MIC parameters on the *in vitro* Activity of Finafoxacin**

S. HAWSER1, M. HACKEL2, S. BOUCHILLO3, A. VENTE3

1IHMA Europe Sarl, Epalinges, Switzerland

2International Management Associates, Inc, Schaumburg, IL, USA

3Merckios Pharmaceuticals, Berlin, Germany

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**Background:** Finafoxacin is a novel member of the fluoroquinolone class of antibiotics. Specifically, finafoxacin belongs to a new 8-bicyclic subclass. The agent contains a novel base component which confers improved antibacterial activity under acidic conditions, where the activity of many existing fluoroquinolones is impaired. Methods: This CLSI M32 Tier 1 study investigated the effects of thirteen different MIC parameters, atmospheric conditions, bovine serum albumin, calcium, fresh versus frozen plates, incubation time, inoculum size, magnesium, and pH on finafoxacin activity. Antibacterial test media: cations, magnesium, incubation time, inoculum size, medium, polymyxin B. Control values were obtained from the test media, bovine serum albumin, calcium, fresh versus frozen plates, incubation time, inoculum size, magnesium, and pH parameters studied. Only pH consistently affected activity across all species, addition of serum or plasma was more species specific (see Table). All other parameters had no effect on the activity.

**Materials & Methods**

- **pH:** Measured at 6.5, 6.7, 7.2, 8.5, and 9.4.
- **Inoculum size:** Measured at 10^5 CFU/ml.
- **MIC values:** Determined by broth microdilution according to CLSI guidelines (CLSI, 2008). All panels were produced at IHMA.

**Results**

- **S. pneumoniae:** Shows superior activity at pH 7.2 compared to pH 6.5 and 8.5.
- **S. pyogenes:** Shows superior activity at pH 5.8 compared to pH 6.5 and 7.2.
- **E. faecalis:** Shows superior activity at pH 6.5 compared to pH 7.2 and 8.5.

**Conclusions**

- The pH of 6.5 is optimal for finafoxacin activity across all species studied.
- Further studies on the effects of other parameters are needed to fully understand the activity of finafoxacin.

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**Revised Abstract**

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