



5^e Symposium du CRIP

**Mercredi 16 mai & jeudi 17 mai 2012
à la Faculté de médecine vétérinaire
de Saint-Hyacinthe, Québec, Canada**

Présentation par affiche (poster)

In vitro* evaluation of the activity of colistin sulfate and its potential metabolites against *Escherichia coli

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Colistin sulfate (CS) is an antimicrobial drug of polymyxin group, recommended for the oral therapy of intestinal infections in pig, particularly those caused by *Escherichia coli*. The aim of the current study was to evaluate the effect of pig simulated gastric fluid on the stability of CS and to study antimicrobial activity of its potential metabolites. Simulated gastric fluid (SGF) was prepared according to the United States Pharmacopoeia (USPCCE 2004). A concentration of 25.000UI of CS was added to 500ml of SGF. At each time point of 0 (before adding pepsin), 5, 10, 15, 30, 45 and 60 minutes, three samples were taken out of the mixture. Each sample was composed by 300µl of mixture solution and 600µl of acetonitrile. From each time point, two samples were used, one for the determining of CS concentration by LC-MS/MS, and the second to evaluate antimicrobial activity after acetonitrile neutralization with evaporation. Antimicrobial assay was conducted in a 96-well plates. A sample of 100µL of Mueller Hinton broth was added to each well of the plate. Then, 100 µL of each time point sample were removed from the first well and double diluted from 8µg/ml to 5ng/ml. Finally, 100 µl of 0,5-McFarland-*E. coli* ATCC 25922 suspensions were inoculated in each well. After plate incubation at 37°C for 18h, MIC was determined as the lowest concentration that resulted in inhibition of bacterial growth. Results of LC-MS/MS showed a rapid degradation of CS in SGF, this deterioration started quickly (from the 5th minute) and has reached the maximum around 30 minutes with 50% of CS degradation. Samples from each time point showed antimicrobial activity against *E. coli* ATCC, and this activity was more important than by non degraded CS. A better evaluation of the future of CS in pig SGF and its antimicrobial activity against *E.coli* is useful to understand the potential impact of oral CS treatment in pig intestinal microflora using *E.coli* as indicator microorganism.