

Global Veterinary Microbiology and Veterinary Medicine Summit

October 17-18, 2016 Chicago, USA

In vitro bactericidal activity of lactoferricin and other enzymes on bacteria selected from dogs with pyoderma

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Lactoferricin (LFcin) is a peptide with antimicrobial activity against microorganisms such as Gram negative and positive bacteria, including some antibiotic-resistant pathogens. Other enzymes like dextrozyme, alkalase and amylase may be associated to the LFcin to enhance its antimicrobial action. The aim of this study was to evaluate the *in vitro* activity of LFcin associations with dextrozyme (LFD), alkalase (LFL) and amylase (LFM) against *Staphylococcus pseudintermedius*, *Escherichia coli*, *Proteus vulgaris* and *Pseudomonas aeruginosa* strains isolated from dogs with pyoderma. The evaluation was performed using minimum inhibitory concentrations with a microtiter plate dilution method starting by an LFcin/enzymes solution at 11%. The bacterial inoculums in log-phase growth were prepared in brain heart infusion broth (BHI) with a turbidity of 0.5 McFarland, corresponding to 10² to 10³ cells/ml. Dilutions in BHI at 2:1 (7.5%), 1:1 (5.5%), 1:2 (3.7%) and 1:5 (1.8%) were used for each bacteria. Negative and positive controls were included. All the wells were incubated 10 µl on blood agar at 37 °C for 48 hours to confirm the bacterial inhibition. The associations LFD and LFM showed bactericidal activity against all the isolates at 7.3%, at 5.5%, only for *S. pseudintermedius* at 3.7%. The LFL showed inhibition at 3.7% for all strains and resistance at 1.8%. These results suggest that the associations of LFcin with other enzymes improve its antimicrobial activity. The LFL exhibits *in vitro* bactericidal activity even against a strain of multidrug resistant *P. aeruginosa* at low concentrations. LFcin and its associations should be a new topical treatment of skin infections.

Biography

Nataschia Bruni has completed her PhD from University of Turin and Postdoctoral studies from High Synthesis School of Gargnano, Italy. She is the Director of Research and Development in Candioli Pharma. She has published more than 10 papers in reputed journals.

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