Antimicrobial compounds of farm animals mucous membranes and glands

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Cattle (tongue and larynx, nasal and oral cavities, rectum, as well as submandibular salivary and lymph glands) and pork (larynx, tongue, labial and nasal cavities, rectum and sublingual salivary glands) mucous membranes were used as sources of antimicrobial substances. Histones of different types were found in studied bovine and pork samples, which themselves possess an antimicrobial activity and can make a great contribution to the formation of peptides with the same action as well as a lot of other antimicrobial proteins. Among bovine tissues, the highest content of tissue-specific peptides was observed in the oral mucosa (77), among pork tissues - in the mucous membranes of the nasal cavity (178), rectum (150) and larynx (166). Special attention was paid to the adaptation of the flow cytometry method to the determination of antimicrobial activity during the whole period of the project. A number of algorithms were worked out using such dyes as EvaGreen, PI, Sybr Green, Syto 9, cFDA, which allowed to form the main and alternative approaches to determining the number of living and dead bacterial cells.
The efficiency of enzymatic treatment (collagenase, elastase) was observed for unpacking AMPs. In accordance with the selection criteria (the value of antimicrobial activity against Staphylococcus aureus and Pseudomonas aeruginosa in the short-term and long-term periods), 16 samples of animal origin were selected amount of living cells in relation to the control was not exceed 50%, often was not higher 25%). The obtained data confirmed that efficiency of use some slaughter waste as a source of natural AMPs, which are safe for usage. In addition, this raw material is easily available and cost-effective, and facilitates an improvement of ecological situation due to reduction of waste volumes by their processing.