PRODUCTION OF RECOMBINANT *SALMONELLA ABORTUS EQUI* PROTEINS

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The cause of mare abortions of salmonellosis etiology is pathogen *Salmonella abortusequi*. The economic damage caused by this infection is due to the loss of reproductive capacity of the sires, litter failure, reduced productivity and veterinary costs. High level of infection of horses is registered in many countries, including Kazakhstan. The main method of diagnosis is bacteriological, but its disadvantages are low sensitivity and duration of results. The OIE recommends the use of PCR and ELISA for diagnosis of infection, however, due to the high cost of test systems, the use of PCR in veterinary laboratories is not always justified, and the effectiveness of the ELISA method depends largely on the structure and purity of the antigen.

Currently, genetic engineering methods make it possible to obtain recombinant antigens of animal pathogens containing separate proteins, which excludes the occurrence of nonspecific reactions. These antigens can be used in tests for serological diagnostics, immunization of laboratory animals, and in the development of vaccines. According to literature data, it is known that diagnostically significant antigens in bacteria of the genus Salmonella are outer membrane proteins. Therefore, the outer membrane protein OmpX of *S. abortusequi*, which has high immunogenicity and conservativeness was selected as a target.

The aim of this work is to obtain recombinant OmpX antigens of *S. abortusequi* and study their properties.

As a result, *E. coli* strains producing recombinant OmpX protein of *S. abortusequi* were created. The synthesized genes were cloned into expression vectors and transformed into competent E. coli BL21 cells. The rOmpX of *Salmonella abortusequi* was produced and purified; electrophoretic analysis showed the purity of the preparation with a molecular mass of 23 kDa.

The recombinant protein was analyzed by LC/MC-MC spectrometry, and peptides containing QTTDYPTYKHDTSDYGFSYGAGLQFN amino acid sequences were identified. A search of the peptide spectrum in the SwissProt database showed that they corresponded to the OmpX protein of *Salmonella abortusequi*.

To determine the quality of protein refolding and the conservation of antigenic epitopes of the protein, Western blot was used with control positive sera that specifically reacted with a protein of molecular mass 23kDa. The resulting recombinant OmpX protein was then used as an antigen in an indirect ELISA to detect antibodies in serum samples from aborted mares. The results of n-ELISA showed the presence of antibodies in serum at a titer of 1:1600 (+26.6; - 21.1).

Thus, rOmpX of *S. abortusequi*with a molecular mass of 23 kDa was obtained and its main properties were studied. The correctness of protein refolding was confirmed by Western blot and ELISA with positive control sera. The specificity of recombinant proteins was proved by interaction with positive serum samples of horses from unfavorable farms. The obtained recombinant antigens can be used in the creation of tests for the diagnosis of salmonellosis abortion of horses in the Republic of Kazakhstan.

WPM с добавлением БАП 1,0 мг/л, ИМК 0,1 мг/л, ГК 0,2 мг/л, где было в среднем образовано 7,36 микропобегов на один эксплант.