higher than of using only solutions of surfactants (11,5-45,4%) or essential oil (21,4-34,5%) for the tubes treatment.

The data obtained make it possible to consider surfactants synthesized by *N. vaccinii* IMV B-7405 on a wide range of cheap and accessible substrates as promising components of «antibacterial» and «antifungal» locks in combination with essential oils and antifungal agents.

Chimeric proteins

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Often, foreign proteins, especially small ones, are detected in the recipient cells only in minimal amounts. This seemingly low level of expression of the genes encoding them is in many cases explained by the degradation of foreign proteins in the host cell. One way to solve this problem is to covalently attach the product of the cloned gene to some stable protein of the host cell. As part of such a construction, called a "chimeric protein", the cloned gene product appears to be protected from cleavage by proteases of the recipient cell, which was shown in the course of experiments. However, due to the presence of a fragment of the host cell protein, most of the chimeric proteins turn out to be unsuitable for clinical use and the cloned gene product itself may become inactive. It makes one look for ways to remove extra amino acid sequences from the obtained product molecule.

One of these methods is based on attaching the protein encoded by the target gene to a host cell protein containing a short peptide (linker) recognizable by a specific proteinase of non-bacterial origin. The linker can be, for example, an oligonucleotide encoding the peptide Ile-Glu-Gly-Arg. After the synthesis and purification of the chimeric protein, clotting factor Xa, a specific proteinase that breaks peptide bonds exclusively at the C-terminus of the Ile-Glu-Gly-Arg sequence, can be used to separate the protein product encoded by the cloned gene.

This approach can also be used to separate many other products encoded by cloned genes. Chimeric proteins are used not only to stabilize polypeptides but also to facilitate the purification of recombinant proteins. The creation of such chimeric constructs is also widely used to control the level of expression of the injected gene and to determine the location of its product in the host cell. In this case, the target gene sequences are fused with genes that encode cell-neutral proteins whose presence in the tissues can be easily tested. They are called reporter genes.

Reporter genes. The most frequently used reporter genes are β-glucuronidase (GUS), green fluorescent protein (GFP), luciferase (LUC), chloramphenicol acetyltransferase (CAT), etc.

GFP (green fluorescent protein, or green fluorescent protein) was discovered by Shimomura et al. in 1962 in the luminescent jellyfish Aequorea victoria. In 2008, the Nobel Prize in Chemistry was awarded to a team of scientists from the United States: Osamu Shimomura, Martin Chalfie and Roger Tsien for the "discovery and study of the green fluorescent protein", which has become one of the most important research tools in biology, as it enables the observation of processes in living cells. The specific properties of the GFP protein, namely its ability to fluoresce in the visible (green) region of the spectrum when exposed to long wavelength UV, are due to the very structure of its molecule and do not require substrates or cofactors. Numerous GFP derivatives are collectively called AFP (autofluorescent proteins). The field of application of reporter genes includes the control of transfer and expression of foreign genes, as well as the temporal and spatial patterns of expression of that particular gene, whether foreign to the recipient cell or its own.

Other applications of chimeric proteins. The methodological technique of DNA construction with the programmed fusion of the product as a part of the chimeric protein is also used to simplify the procedure of purification of recombinant protein. For example, the plasmid construction for S. cerevisiae cells, containing human interleukin-2 gene with a DNA segment, encoding a marker peptide Asp-Tyr-Lys-Asp-Asp-Asp-Asp-Lys, serves a dual function: it provides stabilization of interleukin-2 gene product and facilitates its purification. The chimeric protein

produced after expression of this construct in yeast cells can be purified in one go using immunoaffinity chromatography.

Obtaining permission to use a vaccine containing the chimeric protein is very difficult, so it will probably be necessary to subclone the VP1 sequence in another expression vector. Either way, a subunit FMD vaccine will soon be ready for preclinical trials.

The microbiological studies-grounded choice of the basis of suppositories for the nonspecific vaginitis treatment

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The effectiveness of active pharmaceutical ingredients (APIs) depends on many factors and the most important of them is the basis, which must be optimally selected. The basis for suppositories can speed up or slow down the process of API release, actively affect the speed and duration of pharmacological action. It acts as a carrier and is in contact with the API and the vaginal mucosa. The basis should not interact with API, ie be indifferent and should not affect the patient's body. Therefore, the choice of the basis for obtaining vaginal dosage forms, namely suppositories is an important part of this work.

When choosing the basis, we also took into account the specifics of the application of the developed vaginal suppositories - non-specific vaginitis, associated with abundant yellow or greenish-yellow discharge with an unpleasant odor. It is known that polyethylene glycol bases possess the following qualitative characteristics: chemical indifference, thermal stability, absence of polymorphic modifications, and tolerance to changes in pH. Unlike lipophilic bases, hydrophilic ones have very good moisture-absorbing properties which are best suited for use in significant discharge from the urogenital organs. They are well soluble in water, which ensures their complete solubility in the secretions of mucous membranes.