DEVELOPMENT SEMIPERMEABLE HOLLOW FIBERSES FOR SEPARATION OF VIOLACEIN PRODUCED IN A MEMBRANE BIOREACTOR

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The work is to develop a capillary semi-permeable membrane dedicated directly for use in a bioreactor in which bacteria from the strain of *Janthinobacterium lividum* producing violacein will be grown. These membranes are to be used to separate the violacein from the post-culture wort. It will be necessary to develop membranes with specific cut-off points. It is also anticipated that membranes will undergo partial degradation and be intended directly for the bioreactor. The ultimate goal is to isolate from the biosynthesis products the violacein with the highest concentration and highest purity possible to obtain by membrane techniques.

In the era of intensive search for new drugs for one of the most serious multifactorial diseases such as cancer, substances such as violacein are attracting increasing world interest. Violacein is apurple dye produced by some Gram-negative strains. This compound is characterized by a fairly broad spectrum of activity, demonstrating antibacterial, antiparasitic, antifungal, anti-tumor and immunomodulatory properties Interestingly, it seems that the mechanism of violacein action is not universal and is specific for a given cell type. It is also worth noting that violacein can attenuate tumor growth in vivo without inducing adverse effects at higher doses.

It is planned to develop an efficient method of purifying violacein from the strain Janthinobacterium lividum KP16 (strain from the collection of KBŚLiK PW) in the bioproduction process. The strain is currently grown on ½ LB (lysogeny broth) medium at a temperature of about 17 ˚C with shaking 110-120 rpm. The maximum production of violacein occurs after about 120 hours of breeding.

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