Список використаної літератури

1. https://energivpu7.wixsite.com/osvita/kopiya-gidro
2. https://uk.wikipedia.org/wiki/Присадки
3. А.В. Яковлєва , С.В. Бойченко , А.В. Гудзь , С.О. Зубенко. Фізико-хімічні властивості біодизельних палив на основі етилових естерів рижієвої олії. «Каталіз та нафтохімія» 2020, № 29
4. Т.Р. Дудукова. Альтернативные виды топлива. «Вестник магистратуры.» 2019. № 7-1(94)

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ANALYSIS OF THE MECHANISM OF NATURAL BACTERIAL BIOLUMINESCENCE AND AREAS OF ITS INDUSTRIAL APPLICATION

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Keywords: bacterial bioluminescence, industry, natural mechanism.

Nowadays, there are many different areas of production where classical methods are usually used, but with the development of technology, they become insufficient. Therefore, we propose to start using the bioluminescence of bacteria on the large industrial scale. ATP-bioluminescence assays are used for hygiene control in several settings and industries including healthcare and food processing plants, whereas Lux-tagged bacterial bioluminescence is used to develop improved hygiene practices in the food industry [1].

This work explores the mechanism of bacterial bioluminescence and areas for its further industrial application; therefore, main tasks of the work are the analysis of data in this area of research, performing a comparative analysis based on the found data and the investigation of areas in which this mechanism is applied, and what are the results of world research. Only five genes in the lux operon, luxCDABE, are needed to produce light emission, even in bacteria that normally do not emit light, and thus provide the opportunity to utilize the bacterial lux system as a light emitting sensor in many bacteria [2].

Despite the long-term interest in bioluminescent bacteria and the regulation of their light, the vast majority of studies have concerned only two model organisms: *A. fischeri* and *V. campbellii*.

However, currently, about 25 species of luminous bacteria have been discovered [3]. Thereby, we want to pay your attention on the importance and relevance of continuing research in this area.

Conclusions. Research in bioluminescence and bioluminescent organisms has made phenomenal progress over time. From early discovery research into different areas of industrial application. Bioluminescence has found utility in various fields including medicine, biology, physics and engineering and led to exciting multidisciplinary science across all of them [1].

But, unfortunately, in the next couple of years, interest in studying the bacterial bioluminescence has decreased. With this scientific work, we want to show you that the widespread use of Lux-tagged bacterial bioluminescence and ATP-bioluminescence assays in the industry of Ukraine, the development of less known methods of application, as well as active research in this area, will solve many production problems, in particular, will optimize and improve hygiene control in production.

References:

1. Applications of bioluminescence in biotechnology and beyond [electronic resource] – URL: https://pubs.rsc.org/en/content/articlehtml/2021/cs/d0cs01492c

2. BACTERIAL BIOLUMINESCENCE. Biochemistry and Molecular Biology. Leo Yen-Cheng Lin and Edward A. Meighen [electronic resource] – URL: http://photobiology.info/Lin.html

3. Bacterial Bioluminescence: Light Emission in *Photobacterium phosphoreum* Is Not Under Quorum-Sensing Control [electronic resource] – URL: https://www.frontiersin.org/articles/10.3389/fmicb.2019.00365/full

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ENVIRONMENTAL ASPECT OF PAPER RECYCLING

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Key words: paper, waste, recycling, environment.

Introduction. As known, paper is a very popular material, consisting mainly of plant fibers, and is widely used in virtually all spheres of human life and employment. But, at the same time, the use of paper raises a number of problems, including environmental ones. Paper has been one of the largest components of solid waste in landfills for many years. Despite the growing rate of paper