

It was shown that laboratory rats developed a pattern of acute aseptic inflammation on day 5 after intraperitoneal immunization with 3 % thioglycol medium. The peritoneal exudate contained  $16,8 (15,7 \div 38,2) \times 10^6$  cells of which 24,0 (17,0 ÷ 26,0) % cells were macrophages with typical morphology and CD68+ phenotype. The dynamic of rat peritoneal macrophages chemiluminescence is characterized with 6 different periods which are presented in figure 1. The average value of spontaneous chemiluminescence was  $47,4 \pm 9,2$  mV while luminol-dependent chemiluminescence elevated up to  $398,9 \pm 22,3$  mV and it was established the significant increase of parameters after PMA application –  $4399 \pm 64$  mV, indicating the enhance of stimulated functional activity in 93 times in peritoneal macrophage. The enhancement factor of intact peritoneal macrophages luminol-dependent chemiluminescence was 2,96 (2,06÷5,09) conventional units and the stimulation coefficient reflecting change of luminal-dependent chemiluminescence in the presence of PMA corresponded to 4,32(2,97÷9,70) conventional units.

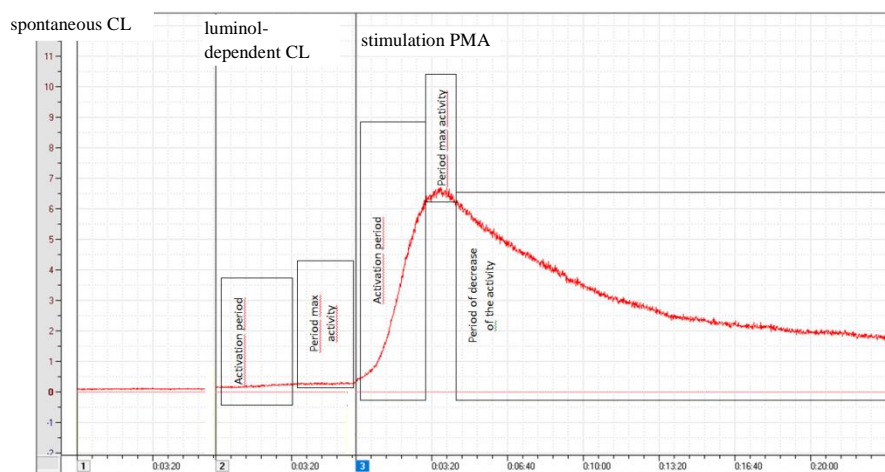


Fig. 1. – The chemiluminescence dynamic in rat peritoneal macrophages

Thus, chemiluminescence of monocytes/macrophages reflects the functional capability of cellular immune response, including phagocytosis and killing of microorganisms and represents an important tool for cell-based immunoassay, including investigation of respiratory burst.

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## ANALYSIS OF CESIUM-137 ACCUMULATION IN VEGETABLES AND MILK IN MINSK REGION

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Recent research shows that in Minsk region from 1990 to 2018 the level of cesium-137 decreased in the following products: milk, potato, beet, carrot, tomato, cucumber and cabbage. The specific activity of  $^{137}\text{Cs}$  decreased unevenly separately for each product.

**Keywords:** cesium-137, vegetables, milk, Minsk region.

The relevance of the topic is due to the possibility of the migration of “Chernobyl’s”  $^{137}\text{Cs}$  along the food chains into the human body [1-4].

**Purpose:** to analyze the content of cesium-137 in vegetables and milk of Minsk region in 1990–2018 period.

The following products were studied: milk, potatoes, beets, carrots, cucumbers, tomatoes, cabbage. A comparative analysis of the statistical data on the content of cesium-137 for the period 1990-2018 was performed (Fig. 1).

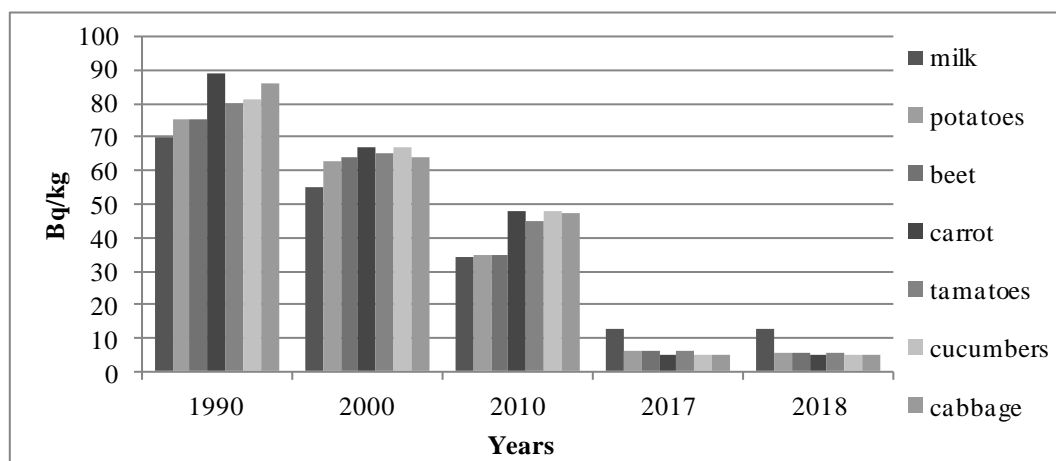


Fig. 1. – Cesium-137 content dynamics in milk and vegetables in Minsk region since 1990 to 2018 ( $p < 0.05$ )

The highest content of cesium-137 was recorded in 1990 in all investigated products of Minsk region. The highest content of cesium-137 in 1990 was found in root crops and potatoes which is likely due to the more active accumulation of cesium-137 by these crops. Throughout the observation period the level of content is constantly decreasing.

Over the entire period of observation, excess of permissible levels of cesium-137 was not observed. [5, 6]. Today the specific activity of cesium-137 in the studied products is suitable for human consumption.

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#### VERIFICATION OF THE MULTIMODAL TREATMENT PLAN ABSORBED DOSE AT REFERENCE POINT VALUE AS A MEAN OF ASSESSING THE QUALITY OF DYNAMIC RADIATION THERAPY PROVIDED

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