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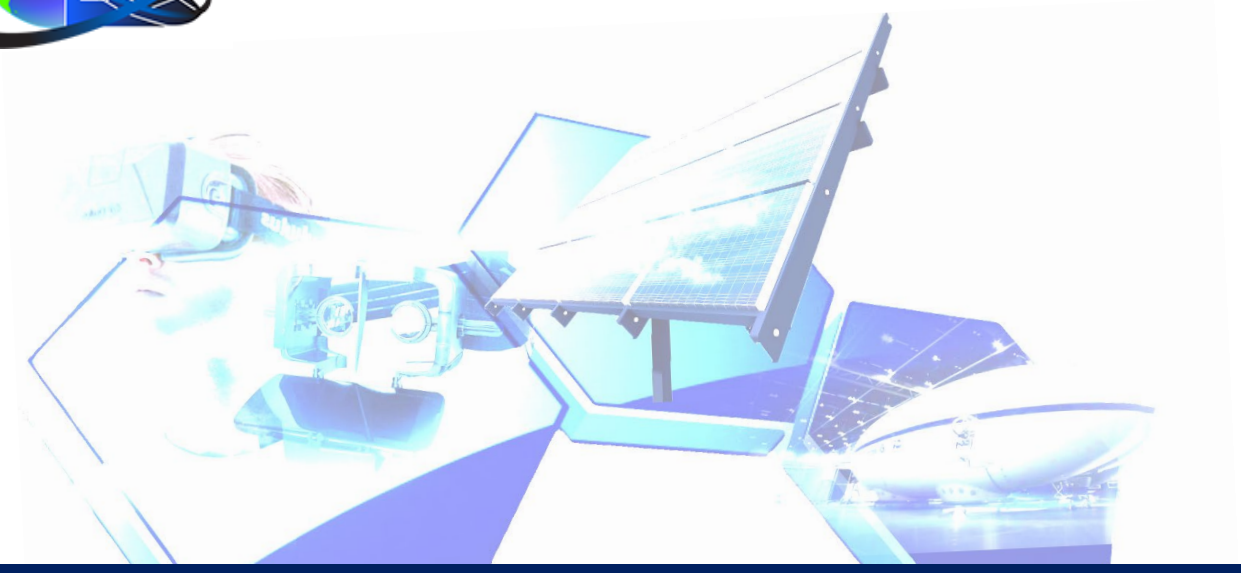

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# THE ACTIVITY OF BIOCHEMICAL MARKERS OF THE ORAL FLUID IN IRON ORE WORKERS

## АКТИВНОСТЬ БИОХИМИЧЕСКИХ МАРКЕРОВ РОТОВОЙ ЖИДКОСТИ У РАБОЧИХ ЖЕЛЕЗОРУДНОГО ПРОИЗВОДСТВА

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***Abstract.*** *The work studied the activity of biochemical markers of the oral fluid in workers of iron ore production, revealed their relationship with the degree of exposure to harmful production factors. Biochemical parameters of the oral fluid of iron ore workers pathologies of organs and tissues of the oral cavity indicate a weakening of the body's defenses and the formation of conditions for growth.*

***Key words:*** *biochemical markers of the oral fluid, workers, iron ore production*

***Аннотация.*** *В работе изучена активность биохимических маркеров ротовой жидкости у рабочих железорудного производства, выявлена их взаимосвязь со степенью воздействия вредных производственных факторов. Биохимические показатели ротовой жидкости рабочих свидетельствуют об ослаблении защитных сил организма и формировании условий для роста патологиях органов и тканей ротовой полости.*

***Ключевые слова:*** *биохимические маркеры ротовой жидкости, рабочие, железорудное производство.*

The main pathogenetic factor of the onset and development of diseases of the hard tissues of the teeth is considered to be dental plaque and waste products of microorganisms, which constitute its basis. This factor shifts the emphasis of preventive complexes to hygienic education of the population, to professional oral hygiene, competent development and appointment of sound methods and methods of personal hygiene with mandatory motivation of the patient to carefully follow the recommendations of the dentist. The change in the elemental composition of saliva plays an important role in the etiology of dental diseases.

Purpose of the study: to assess the activity of biochemical markers of the oral fluid in workers of iron ore production, to reveal their relationship with the degree of exposure to harmful production factors.

*Materials and research methods*. The study involved 256 workers aged 20 to 60 years with work experience of 5-20 years, which constituted the main group of the surveyed. Among them were persons suffering from dust bronchitis (sample size -

95), dust bronchitis and vibration sickness - 96 workers, with vibration sickness - 65. The control group consisted of 79 employees who had indirect contact with hazardous production factors of an industrial facility, comparable in age and gender.

In the oral fluid, biochemical markers were assessed - the activity of catalase (a marker of the state of the antioxidant system) and lysozyme (the level of nonspecific resistance). The activity of catalase in the oral fluid was determined using a method based on the ability of hydrogen peroxide, which did not react with catalase, to combine with molybdenum salts to form a stable orange complex. The color intensity is proportional to the catalase activity, which was expressed in millikatals / L of the oral fluid [1].

Determination of the activity of lysozyme in the oral fluid was carried out by a bacteriological method based on the ability of lysozyme to lyse bacteria. When lysozyme interacts with a substrate of Micrococcus lysodeikticus, the substrate is cleared, which is recorded spectrophotometrically. The degree of clearing is proportional to the activity of lysozyme, which was expressed in units / ml of oral fluid [2].

Research results and their discussion. It should be noted that all examined patients had an insufficient level of oral hygiene and the intensity of periodontal tissue damage increased with age.

Biochemical parameters of the oral fluid also testify to a significant effect on the health of miners, the duration of their work in mining conditions (Fig. 1, Fig. 2).

In the oral fluid, there is a significant decrease with age of miners in the activity of the enzyme catalase, which is a marker of the antioxidant system and lysozyme, which reflects the level of nonspecific resistance, which indicates a weakening of the body's defenses and the formation of conditions for the growth of pathologies of organs and tissues of the oral cavity.

**Conclusions.** Thus, on the basis of clinical and laboratory studies in workers of mining enterprises suffering from dust bronchitis and vibration sickness, a pronounced decrease in the activity of biochemical markers of saliva was noted in comparison with persons of the same age who were not employed in mining.

Analysis of the results of examinations in miners showed a constant increase in the prevalence of signs of pathology in the oral fluid.

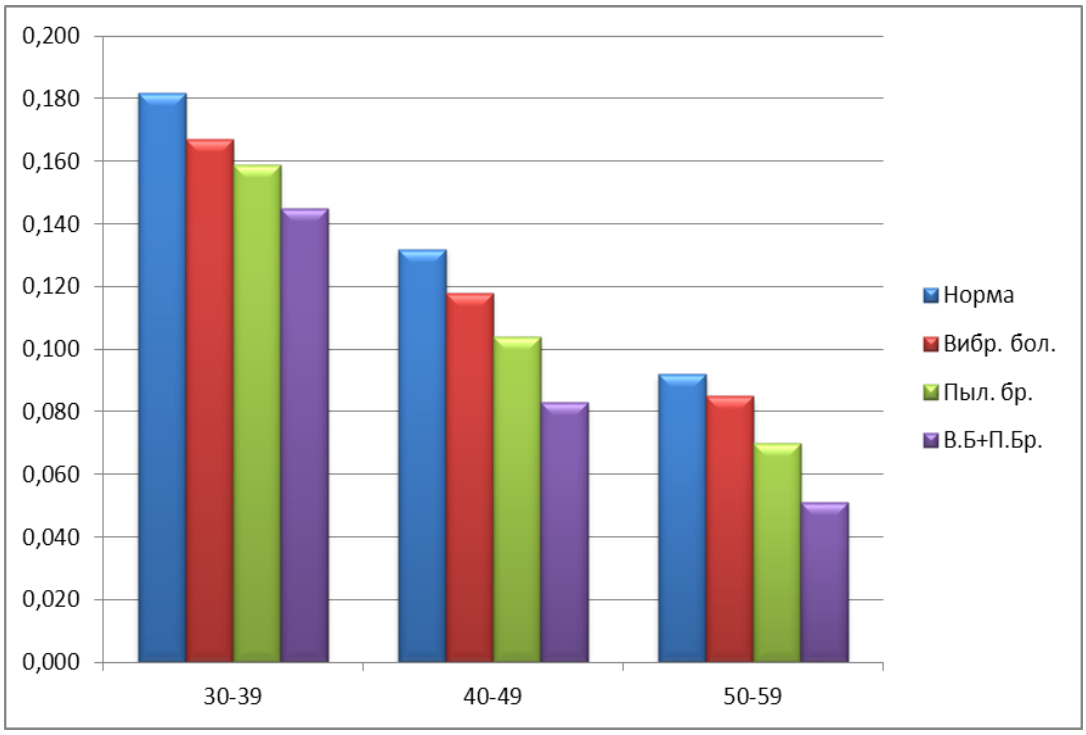


**Figure: 1. Age dependence of catalase activity (µkat / l ) in the oral fluid in mining workers**

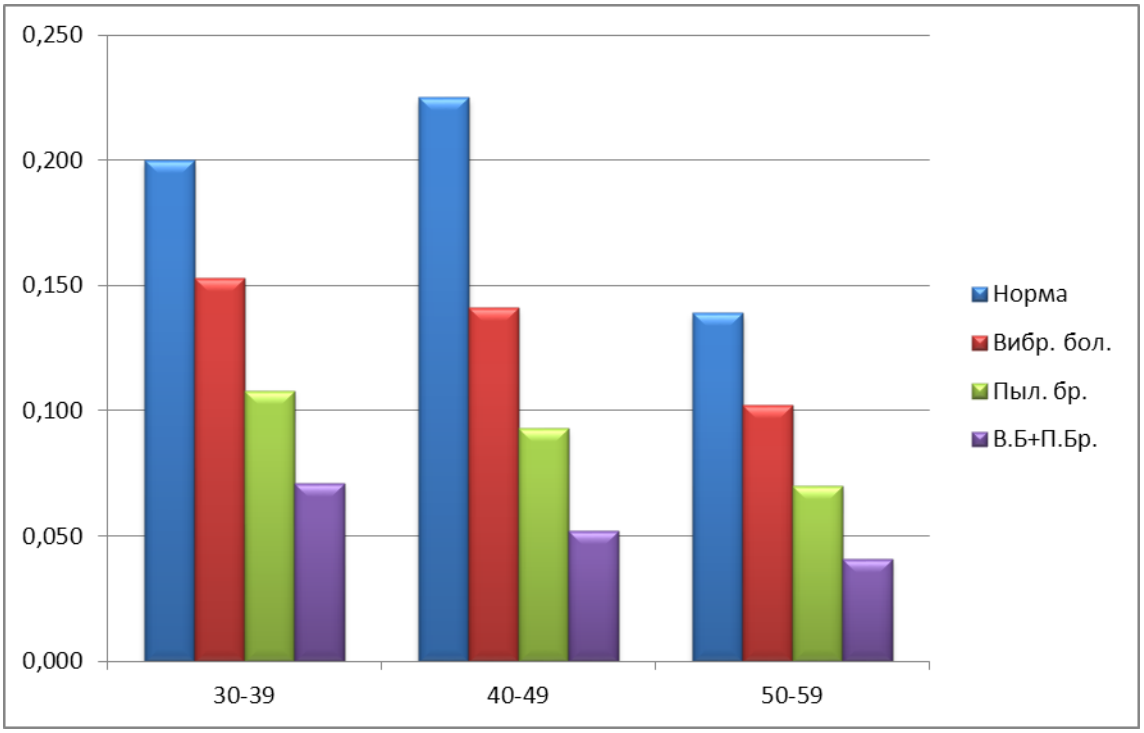


**Figure: 2 Age dependence of lysozyme activity (µkat / l ) in the oral fluid in mining workers**

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