

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
ВИЩИЙ ДЕРЖАВНИЙ НАВЧАЛЬНИЙ ЗАКЛАД УКРАЇНИ  
«БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



## **МАТЕРІАЛИ**

**100 – ї**

**підсумкової наукової конференції**

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**THE INFLUENCE OF THE AIR ENVIRONMENT POLLUTION  
BY WOOD DUST ON THE STATE OF WORKERS PERIODONTAL TISSUES**

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According to the Scientific Committee on Occupational Exposure Limit (SCOEL) of the European Union, the concentration of wood dust in the air environment of the production space of more than 0.5 mg / m<sup>3</sup> has a negative impact on the health of workers, in particular on the mucous membranes of the oral and nasal cavities, eyes, trachea, bronchi and lungs depending on the size of the particles. The concentration of wood dust in the working area of a sawmill is 2-20 mg / m<sup>3</sup>. Fibrogenic, irritating and toxic effects on the mucous membrane of the oral cavity, conjunctiva and upper respiratory tract are mainly carried out by particles in the size of 2-5 microns. The particles of wood dust that hit the mucous membrane of the oral and nasal cavities cause an inflammatory reaction and a local immune response with the release of a significant number of proinflammatory cytokines and immunoglobulins (IgA, IgG). In addition, the dispersion of wood dust particles in the air environment of the working zone is a bio-aerosol, which means an increase in the risk of exposure of microorganisms and fungi to the body of workers. According to the literature, the concentration of fungi in the bioaerosol of the production premises of the primary woodworking industry enterprises is about 3500 units of colonial formation (CFU / m<sup>3</sup>), in addition, the most common cause of allergy was *Penicillium* spp. The presence of allergens, antigens and mycotoxins in the fragment of the fungal fraction makes them potentially dangerous for the health of workers. One of the dangerous properties of wood dust is its genotoxicity. The International Agency for Research on Cancer Research (IARC) sawdust was classified as Carcinogenic Group 1.

Identification and investigation of the effect of workers prolonged contact with wood dust in the air of the production environment of primary woodworking industry enterprises on the state of their dental health.

We examined 111 employees of the primary woodworking industry. Depending on the work experience all the examined were divided into 4 groups: the first group - with work experience up to 5 years (n = 32), the second - 6-10 years (n = 25), the third - 11-25 (n = 32), the fourth - more than 26 (n = 22). The main group of examined consists of 78 people, who constantly work in environment contaminated with wood dust, the control group consists of 33 people who do not come into contact with wood dust. To evaluate the dental status, we used the following indices: OHI-S by Green-Vermillion, API by Lange D.E., Plagmann H., PMA by Schour, Massler in Parma modification, CPITN.

We have found that the dental health of the workers in the experimental group is much worse than in the control group. We found a close connection between the long-term exposure of wood dust and OHI-S by Green-Vermillion (P=0,0099), API by Lange D.E. (P - 0.0070) and PMA by Schour, Massler in the Parma modification (P - 0.0238). We observed a tendency of CPITN index's growth with an increasing the work experience in both groups, however, in the main group indexes were significantly higher.

It was found that during long work at production premises contaminated with wood dust, the state of workers dental health considerably worsens. In particular, we found a close connection between the constant contact with wood dust in the air of the production environment and the deterioration of the oral hygiene state according to OHI-S by Green-Vermillion (P=0,0099) and API by Lange D.E. (P - 0.0070). We found a tendency growth of periodontal diseases treatment needs according to CPITN index (P=0.01) with increasing of work experience in both observation groups, however, these indices were significantly higher in the experimental group than in the control group. We also determined the close connection between long-term contact with wood dust and the occurrence of inflammatory changes in periodontal tissues among workers according to PMA index by Schour, Massler in the Parma modification (P=0.0238).