The past 20th century has been marked by the term of “chemistry of saliva”. This collocation is related to the highlight of a scientific review composed by Irwin Mandel, namely “Diagnostics of Saliva: Promises, Promises”. That terminology concerns also the title and content of an editorial article authored by Daniel Malamud, entitled “Diagnostics of Saliva. Future is now”, published in the Journal of American Dental Association in 2006.

Nowadays there is an explicit tendency of thorough, intensive utilization of saliva in its role of diagnostic medium. In the future it is expected that dental medicine specialists will be more actively participating in identification and monitoring of diseases which are not directly associated with oral cavity structures. Salivary DNA-based assays are routine tools in a large number of clinical laboratories related to the assessment of individual’s genetic predisposition to definite diseases. Such tests are successfully applied for detection of HIV infection, investigation of the progress of kidney diseases, prevention of cardio-metabolic risk, identification and quantitative evaluation of viral nucleic acids, forensic medicine research, dental examinations, as well as in monitoring for medicine abuse. According to some authors, saliva can be accepted as an indicator for the physical activity of the organism, in tests for hardness and psychological stress [1, 2]. The aim of this research was to accentuate upon the diagnostic potentials of saliva in the context of a review.

Materials and Methods: For the purpose of the study we have investigated, selected, analyzed and reviewed profound researches and scientific sources of worldwide scale. We have implemented mainly the PubMed scientific platform.

Results. Saliva is characterized with a variety of non-organic and organic components which act as “mirror of human organism”. In addition to other properties, saliva serves as the first line of protection against oxidative stress. Saliva is marked by its key significance for control and modulation of adverse effects of oxidative factors in the oral cavity. There are undoubtable averages of salivary diagnostic field compared to serum. The approach of implementation of the prevailing substrate of the fluid environment in oral cavity for screening of large groups of population is cost-effective. For the purposes of diagnostics of a vast spectrum of common health disorders most often is applied non-stimulated mixed saliva.

In diagnostic aspect and practical application of saliva some essential advantages are outlined; there is needed relatively small amount of saliva for diagnostic and screening samples; opportunities for investigation of properties and characteristics in long perspective; considerably enhanced sensitivity; non-invasive, non-stressing and feasible procedure of saliva collection; high degree of compliance by patients, no necessity of special appliances, nor need of trained for the purposes of investigation executor. There has been established significant correlation with the level of some blood indicators, especially important for children and adults. As a diagnostic substrate, saliva is more appropriate for precise detection of oral and common health disorders, with elimination of the potential risk for transmission of infectious diseases, concerning executors and patients simultaneously [3, 4]. Saliva acts as an appropriate environment for monitoring oral micro-flora, regarding the fact that some salivary ingredients can serve as environmental growth factors. For example, increased concentration of Streptococcus mutans and Lactobacilli in saliva is associated to increased caries activity and detection of caries lesions on dental root surfaces, as well as detection of specific bacterial species in saliva that reflect upon the microbial content into bacterial plaque and periodontal pockets. Fluctuations of salivary ingredients are taken into consideration in procedures of periodontal diseases diagnostics. Contemporary studies focus on the potential role of periodontal noxae as a risk factor for metabolic syndrome and oxidative stress [5]. Polymerase chain reaction-de-naturating gradient gel electrophoresis, implemented for profiling and identification of species, can serve as widely applied on social level molecular techniques, facilitating investigation of bacterial communities, inhabitants of oral cavity, responsible for initiation and progression of the aggressive carious process [6]. Oxidative stress arising as a consequence of disturbed balance between free radicals (reactive oxygen components), from one side, and anti-oxidant system, from the other, is interpreted as one of the essential etiological factors for numerous inflammatory processes into oral cavity. And tooth decay does not serve as an exception. It has been established that total anti-oxidant capacity is higher among children with stable permanent, caries-active dentition in comparison to caries-resistant teenagers included into the study. In the context of a study performed among patients with carious lesions affecting primary teeth, their salivary total antioxidant capacity is higher in comparison to people with intact primary teeth. There has been registered a statistically significant linear regression model of interrelation between the number of carious primary teeth and total antioxidant capacity of salivary substrate. The presence of carious lesions affecting primary teeth correlates with foci of tooth decay on permanent teeth of the participants [2, 3].

It has been ascertained that nitrogenous oxide and its metabolic products in saliva are characterized with higher informative diagnostic value regarding detection of periodontal diseases in comparison to gingival crevicular fluid. Among patients with diagnosed chronic periodontitis has been confirmed positive correlation between the level of salivary indicator superoxide dismutase and clinical parameters of gingival index, depth of pocket on probing, loss of clinical attachment. The inflammatory protein 1α, produced by salivary macrophages, matrix metalproteinase-8
metalloproteinases and other enzymes, the production of immunoglobulins specific for microbial antigens of pro-inflammatory cytokines (tumor necrosis factor α (TNFα), interleukins (IL) -1,6, -8, the release of matrix and other immunocompetent cells carrying these receptors and induce them to chemotaxis, the secretion of pathogenic microflora through TLR, a continuous flow of signals is provided activating the macrophages interaction with TLR cells differs significantly from that of normal biofilm microflora [2]. With the predominance monocytes / macrophages, fibroblasts via Toll-like receptors (TLR). The process of parodontopathogens lipopolysaccharides (LPS) capable of interacting with cells of damaged epithelium, neutrophilic granulocytes, (PRRs) perceive microbes with these new proteins as «strangers.» All these parodontopathogens are a source of various protective factors is determined by heat shock proteins HSP70 [1-3]. Paternal-recognition receptors in inflammation of Actinobacillus actinomycetemcomitans. In these conditions, the resistance of microflora to Tanerella forsythensis, Porphyromonas gingivalis, Treponema denticola, and the inducer of acute aggressive include the causative agents of the chronic inflammatory process in the periodontal disease, such as dental plaque as a multilayered microbial biofilm with parodontopathogenic microorganisms. They

**References:**


**Key words:** saliva, diagnostics, caries, periodontal diseases, biochemical markers;

**USE OF INDICATORS OF OXIDATIVE STRESS AND HSP 70 PROTEIN AS MARKERS IN THE DIAGNOSTICS OF DENTAL DISEASES**

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The most important triggering factor in the initiation of the pathological process is the formation of the dental plaque as a multilayered microbial biofilm with parodontopathogenic microorganisms. They include the causative agents of the chronic inflammatory process in the periodontal disease, such as Tannerella forsythensis, Porphyromonas gingivalis, Treponema denticola, and the inducer of acute aggressive inflammation of Actinobacillus actinomycetemcomitans. In these conditions, the resistance of microflora to various protective factors is determined by heat shock proteins HSP70 [1-3]. Paternal-recognition receptors (PRRs) perceive microbes with these new proteins as "strangers." All these parodontopathogens are a source of lipopolysaccharides (LPS) capable of interacting with cells of damaged epithelium, neutrophilic granulocytes, monocytes / macrophages, fibroblasts via Toll-like receptors (TLR). The process of parodontopathogens interaction with TLR cells differs significantly from that of normal biofilm microflora [2]. With the predominance of pathogenic microflora through TLR, a continuous flow of signals is provided activating the macrophages and other immunocompetent cells carrying these receptors and induce them to chemotaxis, the secretion of pro-inflammatory cytokines (tumor necrosis factor a (TNF-a), interleukins (IL) -1.6, -8, the release of matrix metalloproteinases and other enzymes, the production of immunoglobulins specific for microbial antigens

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