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EVAPORATION PROCESS AS A RESULT OF CHANGE IN BIOLOGICAL LIQUID AND ITS CONTENT
(0.9% concentration NaCl)

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ABSTRACT
The main directions of research on the crystallization of biological fluids (saliva) are the detection of changes in crystallization depending on the substances present in the liquid and their amounts, and the intermolecular composition of biological fluids that occur during dehydration. is to study the possibility of informing the process.
Numerous scientific data help us to conclude that human biological fluid (saliva) is a unique substance with great potential for use in basic research and medical diagnostics.
KEYWORDS: ***Biological fluid, crystallization, evaporation.***

Currently, much attention is paid to the study of the prospects for the analysis of biological fluids (saliva) for diagnostic purposes. The physical changes in the evaporation of biological fluids and methods for assessing the solid phase are widely used in laboratory diagnostics, the simplicity of the process of obtaining biological fluids in diagnosing the functional state of the body, as well as high sensitivity and access to information. is one of the problems.

The purpose of the study. The method of crystallization of biological fluid (saliva) (the disappearance of the liquid system during the transition to the solid phase) is a method that has recently become widely used. The main directions of research on the crystallization of biological fluids (saliva) are the detection of changes in crystallization depending on the substances present in the liquid and their amounts, and information on the process of intermolecular composition of biological fluids, which occurs during dehydration. is to study the possibility of giving.

Numerous scientific findings suggest that human body fluids (saliva) are a unique substance with great potential for use in basic research and medical diagnostics. Currently, much attention is paid to the study of the prospects for the analysis of biological fluids (saliva) for diagnostic purposes. Increasing the use of biological fluids (saliva) in clinical analysis can help speed up the diagnosis of the disease.

Typically, the physical processes that take place during the evaporation of a certain amount of biological fluid (saliva) in the form of droplets under test using this method, and the solid form of sediment that forms after evaporation (The morphology of the facies) is studied.

Biological fluid (saliva) can be a source for studying human DNA and clinical analysis in the body because the composition of certain molecules in saliva reflects their concentration in the blood. Using saliva for various laboratory tests, especially in children and the elderly, is much simpler, safer, and cheaper than using blood for testing.

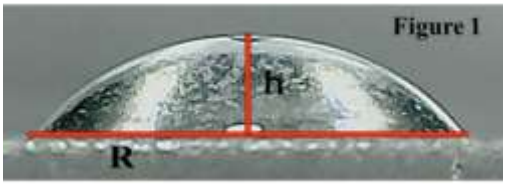

Figure 1

Research method. The process was first studied by placing the biological liquid in a glass beaker in the form of a droplet (Fig. 1, view

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from a horizontal position) from the initial appearance to the solid phase state. was the first study of the interval process before

When a drop of liquid is placed on a clean glass surface, its height decreases during evaporation, the diameter of the base does not change during drying, and the appearance of liquid remaining as a result of liquid leaking from its surface during evaporation is not as shown in Figure 2 (a). Takes the view state in Figure 2 (b).

To study this process, we used a modern biological microscope that can meet the requirements of the time, the main function of the microscope is not only to show the object in an enlarged view, but also to take a picture, transfer the captured object to the screen, Determining the parameters consists of creating a video image.

To calculate the volume of a rainbow-shaped biological fluid (saliva) rising into the air as a result of evaporation from the surface per unit time, we can include the following formula

$$\upsilon = \Delta V/\Delta t$$

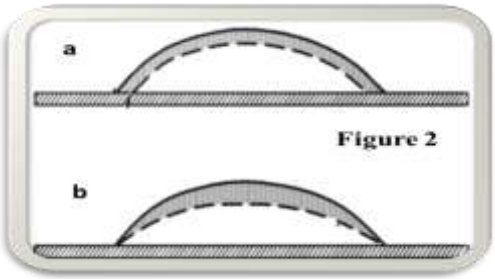

Figure 2

υ —vo

lumetric velocity formed by the evaporation of biological fluid (saliva),

ΔV —The volume that evaporates from a rainbow-shaped sample,

Δt —the time required for a certain volume of biological fluid to evaporate.

$$\Delta V = \mathrm{V}_0 - V$$

V_0 —initial volume of biological fluid,

V —the volume of liquid remaining in the glass during the evaporation of the biological liquid. $\mathrm{V}_0 > V$

t/r	The height of the drop (mm)	The angle formed	The radius of the base (mm)	time required for a certain volume of biological fluid to evaporate (minutes)
100% saliva, 0.9% concentration NaCl is not present.				
1	0,91	27,679	1,74	0
2	0,66	20,813	1,74	10
3	0,42	13,259	1,74	10
75% Biological fluid, 25% NaCl at a concentration of 0.9%.				
1	0,91	27,679	1,74	0
2	0,65	21,102	1,74	10
3	0,44	14,191	1,74	10
50% saliva, 50% NaCl in 0.9% concentration				
1	0,91	27,679	1,74	0
2	0,68	21,631	1,74	10
3	0,46	14,727	1,74	10
25% Biological fluid, 75% NaCl at a concentration of 0.9%				
1	0,91	27,544	1,74	0
2	0,68	21,346	1,74	10
3	0,47	15,138	1,74	10
100% NaCl, 0.9% concentration, no saliva.				
1	0,91	27,794	1,74	0
2	0,69	21,675	1,74	10
3	0,49	15,728	1,74	10

Object of inspection. Samples of a mixture of NaCl with a concentration of 0.9% in the amount of 25%, 50%, 75% in the biological fluid (saliva) in the human body, as well as in this biological fluid (saliva), and in the concentration of pure 0.9%. Taking a sample of NaCl, a drop of it was dropped on

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a glass beaker using a pipidka, and the processes that take place in it, that is, the volume of liquid that evaporates from its surface over time and the formation of form elements, are connected to a computer. observed under a microscope (horizontal and vertical).

Research results. The parameters of the biological fluids (saliva) under test are given in the table. The table shows the appearance of the sample in different states, ie their parameters in the time interval (the time required for a certain volume of biological fluid to evaporate). Using these parameters, the total volume of the biological fluid is V_{um}, and the volume of the droplet evaporated at each time interval (10 minutes) is found to be ΔV, which is the result of the evaporation of the biological fluid (saliva). the volumetric velocity is found by the formula $\upsilon = \Delta V/\Delta t$.

Using the values given in the table for biological fluid (100% saliva), the volumes of the evaporated droplet in the time interval (10 minutes) are $\Delta V_1 = 1{,}82\ mm^3$, and $\Delta V_2 = 1{,}28\ mm^3$, volumetric velocities are $\upsilon_1 = 0{,}182\ mm^3/minut$ $\upsilon_2 = 0{,}128\ mm^3/minut$. The average volume velocity is $\upsilon_{o'r} = 0{,}155\ mm^3/minut$.

The volumetric velocity formed by the evaporation of the biological liquid at 75% and NaCl at 25% is $\upsilon_1 = 0{,}18\ mm^3/minut$ $\upsilon_2 = 0{,}12\ mm^3/minut$ The average volume velocity is $\upsilon_{o'r} = 0{,}15\ mm^3/minut$

When the biological liquid is 50% and NaCl is 50%, the volumetric velocity of the resulting liquid is $\upsilon_1 = 0{,}162\ mm^3/minut$ $\upsilon_2 = 0{,}129\ mm^3/minut$. The average volume velocity $\upsilon_{o'r} = 0{,}1455\ mm^3/minut$

When the biological liquid is 25% and NaCl is 75%, the volumetric velocity of the resulting liquid is $\upsilon_1 = 0{,}165\ mm^3/minut$ $\upsilon_2 = 0{,}119\ mm^3/minut$. The average volume velocity $\upsilon_{o'r} = 0{,}142\ mm^3/minut$.

When NaCl is 100%, the volumetric velocity of the liquid formed as a result of evaporation is $\upsilon_1 = 0{,}16\ mm^3/minut$ $\upsilon_2 = 0{,}117\ mm^3/minut$. The average volume velocity is $\upsilon_{o'r} = 0{,}1385\ mm^3/minut$.

CONCLUSION: In the study of the process of dehydration of a drop of biological fluid, the study of changes in its volume and surface was carried out experimentally for the first time, and as a result the substance contained in biological fluid (saliva) (0.9% NaCl solution) As a result of the change in the amount of water, the volume of liquid released during the dehydration process decreased, and the time of the dehydration process increased, but the volume rate also decreased.

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