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Model of the influence of the absorption coefficient of the medium at various concentrations of glucose and saturation level on the optoacoustic signal in the blood

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On the basis of the optoacoustic effect, the absorption coefficient of the biological medium was calculated depending on the hemoglobin concentration and blood saturation. The above method will allow for the diagnosis of blood composition for a quantitative assessment of hemoglobin content. The ongoing studies made it possible to establish the process of increasing the absorption coefficient of the medium with an increase in the concentration of glucose in the blood and, as a result, a decrease in the amplitude of the OA signal. The dependence of the OA signal amplitude on the tissue absorption coefficient was calculated at blood saturation levels of 60 %, 80 %, and 90 %.

Keywords: optoacoustic effect, absorption coefficient, acoustic signal, saturation, hemoglobin, laser.

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