Descriptions of optoelectronic elements are for control of changes of optical properties of blood after the photopherez

Oleksandr Kozhukhar, Maria Skira, Yurij Kuzio

Abstract - In this paper the experimental results for determination of perspective and possibility of method and capacity of the offered structure of control, consonant with existent technology of photospheres are given.

Keywords – photospheres, optical descriptions of blood, optronic element.

I. INTRODUCTION

The photospheres and other hematological photo technologies are used for treatment of such heavily cured illnesses as a T-cells lymph adenoma of skin and Psoriasis, which consider the precancerous stages. With the purpose of improvement of quality of treatment by perfection of technology due to introduction to it of new contact-less controls it is necessary conducting of experimental researches of spectrums of different objects which touch photopherez. Conducting of these researches is extremely a necessity for determination of perspective and possibility of method and capacity of the offered structure of control, consonant with existent technology of photopherez [1].

II. EXPERIMENTS AND RESULTS

On the basis of got and published by us early recommendations in relation to principles and constituents of the checking system the chart of experiment was developed and the ground of choice of its components is carried out. A chart allowed to conduct research of dependencies of intensity of electric signals, got from sensory part at passing of light stream from every light-emitting diode through the objects set in an experiment.

The structure of optoelectronic element as basic part of such control consisted of radiate and sensory parts. A radiate part shows by itself the matrix of varicolored light-emitting diodes with the chart of electric feed. Light streams are from each of which, passing through contactor with blood, which is disposed between radiate and sensory parts, gets to sensory part.

For optimization of choice of constituents of a radiate part research of spectral was conducted descriptions of light-emitting diodes of different areas of visible range. The got results enabled to choose the types of light-emitting diodes at the terms of accordance them certain by us in previous works to the spectrum bars in which, actually, and there are the foreseen changes of light transmittance as a result of photopherez.

To sensory part silicious photo diodes were applied with a spectral sensitiveness in the area of lengths of waves of 590-980nm. Between parts the flat thin-walled cuvette which was filled the bio-pierce of blood was set.

With the account of changes of spectrum as a result of cooperating of light with material of cuvette and air the expected values of coefficients by light transmittance blood for the chosen light-emitting diodes (fig. 1).

Fig. 1. Coefficients of light transmittance bio-sample of blood.

Such set of bars can be applied as test for be what facilities of electro-optical control of blood.

III. CONCLUSION

Experimentally probed changes of coefficients of admission of the exposed to the rays blood at photopherez. It is considered sufficient for control of such changes of four basic areas of visible spectrum, which can be created light-emitting diodes with offered spectral characteristics of radiation.

It is shown that the most spectral changes of blood from photopherez are tested by red, to greenery and dark blue areas of spectrum which can be applied in developments of the optoelectronic systems as basic constituents of modern equipment of technology of photopherez.

A structure, types of plicate and parameters of the optoelectronic checking system, is offered on the basis of the got results will enable not only to control technology of photopherez but also in subsequent to perfect it.

REFERENCES