

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo PIBIC

Last Name - Ventura

First Name - Liliane

Middle -

Service (sector)

Laboratory - Laboratório de Física Oftalmológica – FMRP-USP

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Corneal Transparency Measuring System for Eye Banks.

Author: Ventura, L.; Isaac, F.; Vieira M.A.C.; Souza, S.J.F.

Purpose: A system for measuring the average corneal transparency of preserved corneas has been developed in order to provide a more accurate and standard report of the corneal tissue. The donated cornea transparency is one of the features to be analyzed previously to its indication for the transplant.

Methods: The small portable system consists of two main parts: the optical and the electronic parts. The optical system consists of a white light, lenses and pinholes that collimate white light beams which illuminate the cornea in its preservative medium. A resistive detector detects the light that passes through the cornea and the average corneal transparency is shown in a display. In order to obtain only the tissue transparency, the electronic circuit was built in a way that there is a baseline input of the preservative medium, previous to the measurement of the corneal transparency. Manipulating the system consists of three steps: 1. Adjusting the zero percentage in the absence of light (at this time the detectors in the dark); 2. Placing the preservative medium in the system and adjusting the 100% value (this is the baseline input); 3. Preserving the cornea and placing it in the system.

Results and Conclusions: The system provides the tissue transparency in its preservative medium. The system is connected to an endothelium evaluation system for Slit Lamp, that we have developed and statistics about the relationship of the corneal transparency and density of the endothelial cells will be provided in the next years. The system is being used in a public Eye Bank in Brazil.