DEVELOPMENT OF A PILOT MODULE FOR MONITORING THE TECHNICAL CHARACTERISTICS OF A PHOTOACTIVATOR OF POLYMER COMPOSITES (FPC)

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Dentistry, like any other science, reflects and corresponds to the current level of achievements in scientific and technical progress. Throughout its development, while performing functions of restoring the anatomical form and function of teeth, dentistry gradually evolved from experienced healers, barbers, bone-setters, blacksmiths, and finally to doctors. New filling materials were found and existing ones were improved, from beeswax and metal amalgams with plastic properties, to various cements, and much later, composite materials. Treatment methods and technologies were also improved, and the range of dental instruments expanded from simple hand drills and pliers to electric drills and pneumatic turbine drills and FPCs.

The FPCis the main tool for working with the most widely used polymer composites today. The main types of FPC, namely halogen, plasma-arc, laser and LED, and their advantages and disadvantages are discussed in detail in [1]. However, the author concludes that none of the FPCs currently available fully meet the requirements for devices of this type in modern dentistry, and this opinion was later expressed by the authors in [2]. We propose to improve one of the existing FPCs with a halogen lamp. This is one of the most common devices and probably all practicing dentists are familiar with it, as the next one (LED) appeared much later and was too expensive. After reviewing all the advantages and disadvantages of the chosen method, the task arose of developing a pilot module that would constantly monitor the current condition of the technical components of the FPC and directly or indirectly control its stable operation. The pilot version of the developed FPC is being built based on the standard device, its housing elements, manipulator, and power supply unit. Two sensors have been added for infrared and ultraviolet power density, a sensor for power supply voltage, and current consumption of the halogen lamp [3].

References:

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