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KEY WORDS : LIGHT ACTIVATING UNIT / CURE/ DENTAL RESTORATIVE
MATERIALS / DEPTH OF CURE / HARDNESS.

JINDAPORN PHITHAKSILP: THE DESIGN AND CONSTRUCTION OF A
MICROCONTROLLED LIGHT ACTIVATING UNIT FOR CURING DENTAL
RESTORATIVE MATERIALS. THESIS ADVISORS: CHUSAK VEJBAESYA, M.D.
Ph.D., SOMSRI DAOCHAI, M.Sc., PRACHA SIWAWETKUL, M.Sc., REDA
KASETSUWAN, D.D.S., M.P.H. 114 P. ISBN 974-664-830-6

A light activating unit is significant for curing many kinds of polymerisable restorative materials used in dentistry. Three essential components are required for adequate polymerization: sufficient radiant intensity, correct wavelength of visible light and ample curing time.

This study considers the design and construction of the microcontrolled light activating unit for curing dental restorative materials. Considerations include size, low cost and use of materials available in country. The wavelength selecting filter and the fiber optic light guide of the 3M company have been used in this study. Testing was done to evaluate the efficiency of the constructed microcontrolled light activating unit by comparing the measured value between the constructed microcontrolled light activating unit and the commercial light activating unit. The results show that the constructed microcontrolled light activating unit could cure dental restorative materials at a 95% level of confidence. Furthermore, the constructed microcontrolled light activating unit was tested for electrical safety according to the ISO/TS Specification No.10650;1999 and found to have several conditions at an acceptable range.

This unit could be used resulting in low cost, but still highly effective.