

**Sudan University for Science and Technology**  
**College of Post Graduate Studies**  
**Institute of Laser.**

**Use of Diode Laser (810nm) for Treatment  
of Cervical Dentin Hypersensitivity**

A thesis Submitted as A Partial Fulfilment for the  
Requirement of the Degree of Diploma in Laser Application  
in Dentistry.

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## Contents

Dedication.....	I
Acknowledgment .....	II
List of tables .....	III
List of figures .....	IV
List of abbreviations .....	V
Abstract .....	VI

### Chapter 1: Introduction and Literature Review

1.1 Introduction .....	1
1.2 Literature review .....	3
1.2.1 Pain .....	3
1.2.2 Dental Pain.....	5
1.2.3 Dentin, Structure, Functions and Types.....	8
1.2.4 Laser treatment of dentin hypersensitivity.....	13

Chapter 2: Material and Methods.....	29
Chapter 3: Results and Discussion.....	32
Conclusions and recommendations.....	41
References .....	42

Appendix 1: Questionnaire

Appendix 2: Examination and check list

## Abstract.

Dentine hypersensitivity is a disease that affects both man and women, and it is an overreaction for a stimulus that normally would not cause pain in a healthy tooth. The etiology is multifactorial, and the pain appears especially when the cervical region dentine is exposed to the oral environment. The purpose of this study was to test the efficiency of application of the diode laser (810 nm) (GaAlAs) in the treatment of dentine hypersensitivity. Fourteen teeth were selected in patients who had attended Institute of laser, Sudan University for Science and Technology complaining of dentin hypersensitivity. The Local Ethics Committee approved this work. The patients were questioned about pain, and after tactile (probe) and evaporative stimuli (air jet), scores were attributed and recorded in an analogous visual scale: score 10 (unbearable pain); 7 to 9 (strong and bearable pain), 4 to 6 (moderate pain), 1 to 3 (light pain) and 0 (no pain). The laser was applied on the surface that presented sensitivity (non contact) for (30-60 seconds) at 1W. The scores were attributed before and after (15 mins-1 week ) from the time of laser application.

The results were analyzed by the non-parametric Friedman analysis of variance ( $p=0.001$ ) and by Kolmogorov- Smirnov test ( $p=.002$ ).

The results show reduction of pain after 15 minutes of laser application in the group with 30 seconds exposure duration, and the pain was completely absent after one week in the same group, while in the group with 1 minute exposure duration the pain is completely absence (visual analogous scale= (0)) after 15 minutes and after one week from the laser application.

It was concluded that the treatment performed using diode laser was effective for the reduction of dentine hypersensitivity.