

**Ministry of Higher Education
and Scientific Research
University of Baghdad
College of Dentistry**



**Effect of different staining materials on color
stability of sapphire brackets bonded with different
types of light cure orthodontic adhesives
(An in vitro study)**

A Thesis

Submitted to the Council of the College of Dentistry, University of
Baghdad in Partial Fulfillment of Requirements for the Degree of
Master of Science in Orthodontics

By

Alaa Faleh Albo Hassan

B.D.S

Supervised by

Professor Dr. Nidhal H. Ghaib

B.D.S., M.Sc.

2014 A.D.

1435 A.H.

Abstract

The demand for better esthetic during orthodontic treatment has increased now a days, so orthodontists starting using esthetic arch wires, brackets and ligatures.

Tooth colored brackets were introduced in different types of materials. Sapphire ceramic brackets are one type of esthetic brackets and their color stability remains the main concern for the clinicians and patients at the same time .

The present study design to evaluate the effect of three different staining materials (black tea, pepsi and cigarette smoke) on the stainability of sapphire ceramic brackets bonded with three types of light cure orthodontic adhesives which include: Resilience, Enlight and Transbond.

The sample consisted of three hundred sixty sapphire brackets. The brackets were divided according to bonding materials into three groups each group consist of one hundred twenty brackets, then each subgroup further subdivided into four groups according to the material they were immersed (distilled water, black tea, Pepsi and cigarette smoke) with thirty brackets each, then each group with ten brackets further subdivided according to time interval of immersion in each media into three groups one day, seven days and fourteen days at 37°C in the incubator.

A UV-Visible spectrophotometer (Shimadzu, UV -1800) was used to perform a light absorption test.

ANOVA and LSD tests were used to identify the significant effects of the staining materials at a significance level $P \leq 0.05$.

It was found that the immersion time gradually influenced the color stability of the adhesive materials with sapphire brackets with the highest activity observed at fourteen days interval. The brackets bonded with Resilience light cure adhesive are the most type affected by staining materials, then followed by the brackets bonded with Transbond and finally the brackets bonded with Enlight light cure adhesive.

For the staining materials it was found that the cigarette smoke is the most powerful staining material, followed by tea and finally pepsi.

From the above result we can conclude that the type of adhesive must take in consideration when the esthetic brackets have been used.