

***The Influence of Caries Detector Dye
On Shear Bond Strength of Dentin Using
Two Dentin Adhesive Systems***

(In vitro study)

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Abstract

This in vitro study evaluate the effect of caries detector dyes on shear bond strength of two different adhesive system, scotch bond (Water / ethanol base adhesive system) and prim and bond NT (acetone base adhesive system).

Forty sound human upper first premolar teeth recently extracted for orthodontic purpose were selected. These teeth polished and cleaned before embedded in acrylic block. 2 mm from the buccal surface of the blocked tooth were ground to obtain flat superficial dentin surface with 600 grit silicon carbide paper, each tested groups had been treated with caries detector dye for 10 second. The tested and control groups were etched using (37 %), orthophosphoric acid, and then bonding system was applied according to manufactur instruction.

The specimens were divided in two main groups. Each one subdivided in two subgroups.

Groups A: treated with scotch bond 1 with 3 M feltik Z 250 composite resin

Sub group A1 (control groups).

sub group A2 (experimental group, dentin surface pretreated with caries detector dye before etching).

Group B treated with prime & Bond NT adhesive system with compomer.

sub group B1 (control groups).

sub group B2 (experimental group, dentin surface pretreated with caries detector dye before etching).

Shear bond strength was determined using Instron testing machine and the result showed that:

- There is a significant decrease in shear bond strength for scotch bond-1 adhesive system and 3M feltik Z 250, after treatment the prepared surface of dentin with caries detector dyes for 10 second.
- There is no significant difference in the shear bond strength for prime & bond NT with compomer resin after treatment the prepared surface of dentine with caries detector dyes for 10 second
- There is a significant difference in shear bond strength with 3 M feltik Z 250 and compomer , it was a higher for 3 M feltik Z 250 than compomer (with out dye application).
- The effect of caries detector dye is depend on the type of bonding system were used.
- The mode of failure after shear bond strength tested are mainly adhesive and only one specimens show cohesive failure in composite.