

Discolouration of orthodontic adhesives caused by food dyes and ultraviolet light.

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Enamel discolouration after debonding of orthodontic attachments could occur because of irreversible penetration of resin tags into the enamel structure. Adhesives could discolour because of food dyes or ultraviolet irradiation. The aim of this study was to investigate the colour stability of adhesives during ultraviolet irradiation and exposure to food colourants. Four different adhesives were exposed in a Suntest CPS+ ageing device to a xenon lamp to simulate natural daylight (Transbond XT, Enlight, RelyX Unicem, and Meron Plus AC). Tomato ketchup, Coca Cola, and tea were chosen as the food colourants. After 72 hours of exposure, colour measurements were performed by means of a spectrophotometer according to the Commission Internationale de l'Eclairage L*a*b* system and colour changes (ΔE^*) were computed. Statistical differences were investigated using two-way analysis of variance (ANOVA) and Friedman test. Unsatisfactory colour stability after in vitro exposure to food colourants and ultraviolet light was observed for the conventional adhesive systems, Transbond XT and Enlight. RelyX Unicem showed the least colour change and the resin-reinforced glass-ionomer cement (GIC), Meron Plus AC, the greatest colour change. The investigated adhesives seem to be susceptible to both internal and external discolouration. These in vitro findings indicate that the tested conventional adhesive systems reveal unsatisfactory colour stability which should be improved to avoid enamel discolouration.

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