

Color stability of various types of resin composites after immersion in different soups



Students

Benjaporn	Suriya	6200124
Thanawan	Nakprame	6200146
Naphatsawan	Netpitoon	6200156
Yalada	Auttavet	6202034
Chayanit	Kosananchai	6202042



Advisors

Phanassaya Jaturanont
Viracha Vachiramon



Background

Nowadays, there is a higher demand for esthetics not only for the function of restoration. Discoloration is one of the problems that affect esthetics of resin composite. This can be caused by various factors. Whether extrinsic factors such as food, beverage, or intrinsic factors such as type of resin matrix.

Objective

- To compare the color stability of bulk fill, flowable and conventional resin composite after immersion in four different types of soup Mala, Sukiyaki, Tom yum and distilled water.
- To compare the color stability of each type of resin composites immersing in soups at the different time exposure.

Data analysis

The statistics were calculated by IBM SPSS statistics and descriptive statistic using mean and standard deviation. Analyzed by two way-ANOVA statistic and Post Hoc Tukey's test $p < 0.05$ and confidence interval 95%.

Result

In this study, resin composite showed significant color changes after immersion in different soup. The FT immersed in Mala soup exhibited the highest color change, followed by BF, CE, and FS respectively. Mala and Tomyum soup caused the greatest color changes, while sukiyaki soup led to the least color change.

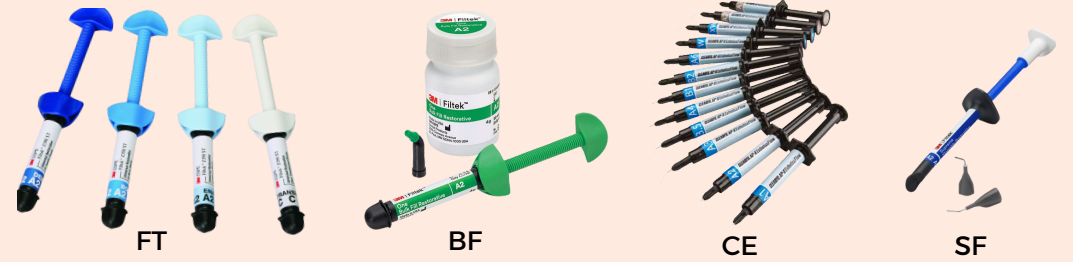
Conclusion

The types of resin composite and the soup significant influenced color change of resin composite. Flowable composites exhibited the least color change, while mala and tomyum soup caused the greatest color change. Resin composite which immersing in Mala soup once a week continue for three months will exhibit the color change of resin composite.

Clinical Significance

On the 24 hrs (T1), 48 hrs (T2), 72 hrs (T3), and 96 hrs (T4) when considering the factor of resin composite type, soup type, and the exposure time to the soup, the mean color change values (ΔE) showed statistically significant difference. The interaction between the two factors also revealed statistically significant differences, with a confidence interval $> 95\%$ (p -value < 0.05).

Therefore, the type of resin composite, the type of soup, and exposure time have different effects on the color stability of resin composite restorations, leading to the rejection of the hypothesis of this research.



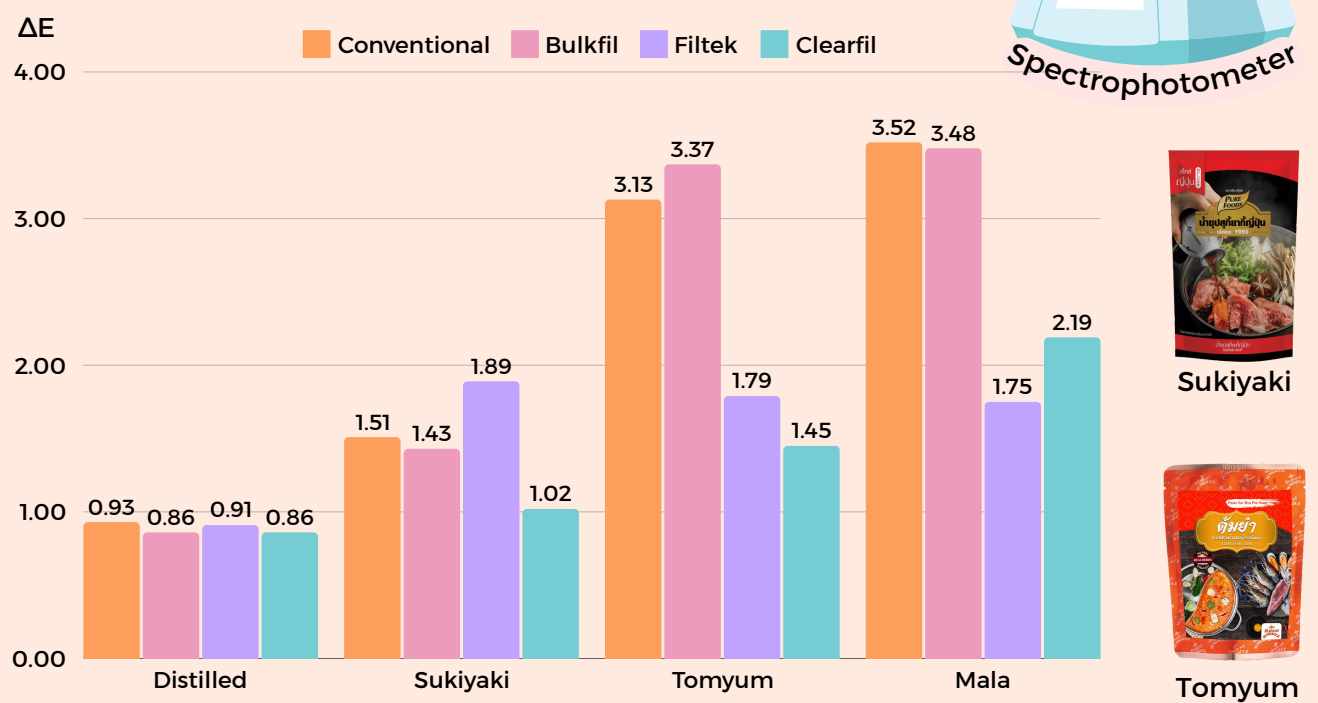
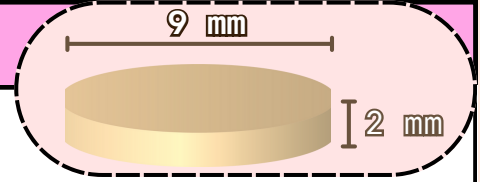
Methodology

A total of 128 resin composite specimens were prepared using silicone molds, and all specimens were polished with Sof-Lex 3M ESPE Fine and Superfine discs.

The specimens were then randomly divided into 4 groups based on the resin composite type:

32-Clearfil AP-X Esthetics Flow (CE), 32-Filtek One Bulk Fill Restorative Composite (BF), 32-Filtek Z350XT (FT), and 32-3M™ Filtek Supreme Flowable Restorative (SF).

Next, 8 specimens of each composite type were immersed in soup at 55°C in an incubator for 24 hours to simulate once-a-week consumption over 3 months per cycle. The color change (ΔE) was then measured using a spectrophotometer.



Sukiyaki



Tomyum



Distilled water (controlled specimens)



Mala

Keyword: Color change, Color stability, Color change, Resin composite, Spectrophotometer

