

INTISARI

Restorasi resin komposit nanofil yang berada dalam rongga mulut berkontak dengan saliva yang 99% terdiri dari air. Variasi pH saliva mempengaruhi laju proses hidrolisis yang menyebabkan kekasaran permukaan. *S.mutans* dapat melekat pada area kasar di rongga mulut. Tujuan penelitian untuk mengetahui pengaruh variasi pH saliva terhadap perlekatan *S.mutans* pada resin komposit nanofil

Objek penelitian 12 cakram resin komposit nanofil (Filtex Z350XT 3M ESPE) diameter 5 mm tebal 2 mm, dibagi menjadi 3 kelompok, direndam dalam 5 ml saliva buatan pH 3,5, pH 7, dan pH 8, diinkubasi 14 hari, 37°C. Masing-masing objek direndam dalam saliva 1 jam, 37°C, kemudian dimasukkan ke suspensi bakteri diinkubasi 24 jam, 37°C. Pengenceran dilakukan hingga 10^{-5} , 0,1 ml dari pengenceran terakhir diambil dan dikulturkan pada media BHI agar, diinkubasi 48 jam, 37°C. Koloni *S.mutans* yang tumbuh dihitung menggunakan *colony counter* (CFU/ml). Analisis data menggunakan uji ANAVA satu jalur dan uji LSD.

Hasil penelitian didapatkan rerata jumlah koloni *S.mutans* dari kelompok pH 3,5; pH 7; pH 8 (dalam satuan 10^6 CFU/ml) adalah $82,00 \pm 3,651$; $62,50 \pm 2,646$; $66,50 \pm 3,109$. Hasil uji ANAVA satu jalur menunjukkan terdapat pengaruh signifikan dari variasi pH saliva terhadap perlekatan *S.mutans* pada resin komposit nanofil ($p < 0,05$). Pada uji LSD terdapat perbedaan yang bermakna antara kelompok yang direndam pH 3,5 dengan kelompok yang direndam pH 7 maupun pH 8, sedangkan antara kelompok yang direndam pH 7 dengan kelompok yang direndam pH 8 tidak didapatkan perbedaan bermakna. Kesimpulan penelitian adalah variasi pH saliva berpengaruh meningkatkan perlekatan *S.mutans* pada resin komposit nanofil, pH saliva yang asam lebih menyebabkan peningkatan perlekatan bakteri *S.mutans* dibandingkan dengan pH saliva yang netral maupun basa.

Kata kunci : pH saliva, *Streptococcus mutans*, Resin komposit nanofil.

ABSTRACT

Nanofilled composite resin restorations in the oral cavity are always in contact with saliva, which is 99% water. Salivary pH variations may affect the rate of hydrolysis process and produce a surface roughness. *S.mutans* adhesion can occur in a rough area of the oral cavity. The purpose of this study was to determine the effect of variations in salivary pH on *S.mutans* adhesion to nanofilled composite resin.

Objects in this study were 12 disc-shaped nanofilled composite resin (Filtex Z350XT 3M ESPE) with 5 mm diameter and 2 mm thick. The objects were divided into three groups and immersed in 5 ml artificial saliva pH 3.5, pH 7 and pH 8 and were incubated for 14 days at 37°C. The objects were soaked into saliva for 1 hour at 37°C, then objects were put into bacterial suspension for 24 hours at 37°C. It was diluted to 10⁻⁵ then 0.1 ml of the final dilution were cultured on solid media of BHI and incubated for 48 hours at 37°C. The number of *S.mutans* colonies were determined using a colony counter (CFU/ml). Data were analyzed using One-Way ANOVA and LSD test.

The results showed average numbers of *S.mutans* colonies on pH 3.5; pH 7; pH 8 (10⁶ CFU/ml) were 82.00±3.651; 62.50±2.646; 66.50±3.109. The result of One-Way ANOVA test showed that there were significant effects of variations in salivary pH on *S.mutans* adhesion to nanofilled composite resin ($p < 0.05$). Based on LSD test, there were significant differences between the pH 3.5 group and the pH 7; pH 8 groups, but there was no significant difference between the pH 7 group and the pH 8 group. It can be concluded that variations in salivary pH affected *S.mutans* adhesion to nanofilled composite resin. The acidic pH of saliva increased the *S.mutans* adhesion on nanofilled composite resin compared with the neutral or alkaline pH of saliva.

Keywords : Salivary pH, *Streptococcus mutans*, Nanofilled composite resin.