

INTISARI

Gigi sensitif dapat menyebabkan psikologis seseorang terganggu dikarenakan proses demineralisasi. Beberapa bahan alami seperti cangkang *Achatina fulica* digunakan sebagai ACP. Bahan tersebut dikombinasikan CMC dari kitosan dan minyak atsiri *Zingiber officinale* var. *rubrum* sebagai agen remineralisasi biomimetik. Tujuan penelitian ini untuk mengetahui pengaruh nanospray CMC/ACP cangkang *Achatina fulica* dan minyak atsiri *Zingiber officinale* var. *rubrum* terhadap kekasaran permukaan dentin.

Total subjek penelitian adalah 27 (n=3 untuk setiap kelompok durasi dan jenis perlakuan). Pengukuran kekasaran permukaan dentin dilakukan sebelum remineralisasi (demineralisasi dengan asam sitrat 6%) dan setelah remineralisasi. Jenis perlakuan remineralisasi terdiri atas 3 jenis (*nanospray* kontrol negatif tanpa ACP, *nanospray* CMC/ACP cangkang *Achatina fulica* dan minyak atsiri *Zingiber officinale* var. *rubrum*, Pepsodent Sensitive Mineral Expert sebagai kontrol positif). Pengukuran kekasaran permukaan dentin dilakukan menggunakan *surface roughness tester*.

Hasil uji *Two-Way* ANOVA menunjukkan bahwa durasi serta jenis perlakuan berpengaruh terhadap kekasaran permukaan dentin oleh *nanospray* CMC/ACP cangkang *Achatina fulica* dan minyak atsiri *Zingiber officinale* var. *rubrum*. Hasil LSD menunjukkan bahwa terdapat beberapa perbedaan signifikan antara *nanospray* CMC/ACP cangkang *Achatina fulica* dan minyak atsiri *Zingiber officinale* var. *rubrum* dengan kontrol positif dalam kekasaran permukaan dentin. Kesimpulan penelitian ini adalah agen remineralisasi biomimetik *nanospray* CMC/ACP cangkang *Achatina fulica* dan minyak atsiri *Zingiber officinale* var. *rubrum* berpotensi menurunkan kekasaran permukaan dentin.

Kata kunci : remineralisasi biomimetik, CMC/ACP, *Achatina fulica*, *Zingiber officinale* var. *rubrum*, kekasaran permukaan

ABSTRACT

Sensitive teeth can cause psychological disturbances due to the demineralization process. Several natural ingredients, such as *Achatina fulica* shells are suitable for use as ACP. This material is combined with CMC from chitosan and *Zingiber officinale* var. *rubrum* essential oil as a biomimetic remineralization agent. The purpose of this study was to determine the effect of CMC/ACP nanospray from *Achatina fulica* shells and *Zingiber officinale* var. *rubrum* essential oil on dentin surface roughness.

A total of 27 subjects participated (n=3 for each treatment duration and type). Dentin surface roughness measurements were performed before and after remineralization (demineralization with 6% citric acid). The remineralization treatments consisted of three types (a negative control nanospray without ACP, a CMC/ACP nanospray of *Achatina fulica* shells and *Zingiber officinale* var. *rubrum* essential oil, and Pepsodent Sensitive Mineral Expert as a positive control). Dentin surface roughness was measured using a surface roughness tester.

The *Two-Way* ANOVA test results showed that the duration and the type of treatment affected dentin surface roughness by the CMC/ACP nanospray of *Achatina fulica* shells and *Zingiber officinale* var. *rubrum* essential oil. The LSD results showed that there were several significant difference between the CMC/ACP nanospray of *Achatina fulica* shells and *Zingiber officinale* var. *rubrum* essential oil and the positive control in dentin surface roughness. The conclusion of this study is that the biomimetic remineralization agent CMC/ACP nanospray from *Achatina fulica* shell and *Zingiber officinale* var. *rubrum* essential oil has the potential to reduce dentin surface roughness.

Keywords : biomimetic remineralization, CMC/ACP, *Achatina fulica*, *Zingiber officinale* var. *rubrum*, surface roughness