

## DAYA HAMBAT CAMPURAN *ZINC OXIDE* DENGAN EKSTRAK *CURCUMA LONGA* LINN. TERHADAP *STREPTOCOCCUS MUTANS*

### ABSTRAK

**Latar Belakang:** Tingkat penyembuhan pulpa setelah tindakan *pulp capping* sangat bergantung pada material yang digunakan dalam prosedur itu. *Zinc oxide eugenol* menjadi salah satu bahan pilihan dalam *pulp capping* karena memiliki sifat antimikroba, namun bersifat iritan. Pada konsentrasi tinggi, eugenol dapat menyebabkan nekrosis sel dan memperlambat proses penyembuhan sel. Rimpang *Curcuma longa* Linn. memiliki sifat antimikroba yang tinggi karena mengandung beberapa bahan aktif termasuk kurkuminoid, sehingga diharapkan campuran *zinc oxide* dengan ekstrak *Curcuma longa* Linn. dapat dipakai sebagai bahan alternatif *pulp capping*. **Tujuan:** Untuk mengetahui daya hambat campuran *zinc oxide* dengan ekstrak *Curcuma longa* Linn. dengan perbandingan 1:1 dan 1:½ terhadap pertumbuhan *Streptococcus mutans*. **Metode:** Rimpang segar *Curcuma longa* Linn. di maserasi dengan etanol 96% hingga menjadi ekstrak. *Zinc oxide* dicampur dengan ekstrak *Curcuma longa* Linn. dengan perbandingan 1:1 dan 1:½. *Zinc oxide* bubuk dicampur dengan eugenol cair dengan perbandingan 1:0,35 sebagai kelompok kontrol penelitian. Campuran *zinc oxide* dengan ekstrak *Curcuma longa* Linn. kemudian diaplikasikan ke media pertumbuhan *Tryptone Yeast Cystine* (TYC) dengan metode difusi. **Hasil:** Tidak ada perbedaan daya hambat yang signifikan antara campuran *zinc oxide* dengan ekstrak *Curcuma longa* Linn. dengan *zinc oxide eugenol* dalam menghambat pertumbuhan *Streptococcus mutans*. **Simpulan:** Campuran ekstrak *zinc oxide* dengan *Curcuma longa* Linn. dengan perbandingan 1:1 dan 1:½ memiliki daya hambat yang setara dengan *zinc oxide eugenol* dalam menghambat pertumbuhan *Streptococcus mutans*.

**Kata Kunci:** *Curcuma longa* Linn., *zinc oxide*, *zinc oxide eugenol*, kurkuminoid, *Streptococcus mutans*

**INHIBITORY EFFICACY OF THE MIXTURE CONTAINING  
ZINC OXIDE AND CURCUMA LONGA LINN. EXTRACT  
AGAINST STREPTOCOCCUS MUTANS.**

**ABSTRACT**

**Background:** The pulpal healing rate after pulp capping application is very dependent on the material that is used in the procedure. Zinc oxide eugenol is one of the materials that is usually chosen in pulp capping because of its antimicrobial property, but it is irritant. In high concentration, eugenol can cause cell necrosis and decrease cell healing rate. The rhizome of *Curcuma longa* Linn. has a high antimicrobial property because it contains several active ingredients including curcuminoid, so that the mixture of zinc oxide and *Curcuma longa* Linn. is expected to be used as a better alternative material for pulp capping. **Purpose:** The aim of this study was to determine the inhibitory efficacy of the mixture of zinc oxide with *Curcuma longa* Linn. extract with the ratio of 1: 1 and 1: ½ compared to zinc oxide eugenol on the growth of *Streptococcus mutans*. **Methods:** Fresh rhizome of *Curcuma longa* Linn. was macerated with 96% ethanol until extract was formed. Zinc oxide was mixed with *Curcuma longa* Linn. extract with the ratio of 1: 1 and 1: ½. Zinc oxide powder is mixed with eugenol liquid with the ratio of 1: 0.35 as the control group. The mixture of zinc oxide and *Curcuma longa* Linn. extract then applied to Triptone Yeast Cystine (TYC) as the growth media with diffusion method. **Result:** There was no significant difference between the inhibitory efficacy of the mixture of zinc oxide and *Curcuma longa* Linn. extract compared to that of the zinc oxide eugenol in inhibiting the growth of *Streptococcus mutans*. **Conclusion:** The mixture of zinc oxide and *Curcuma longa* Linn extract with the ratio of 1: 1 and 1: ½ had comparable inhibitory efficacy with that of the zinc oxide eugenol against *Streptococcus mutans*.

**Keywords:** *Curcuma longa* Linn., zinc oxide, zinc oxide eugenol, curcuminoid, *Streptococcus mutans*