

## INTISARI

Gigi tiruan *thermoplastic nylon* selalu berkontak dengan rongga mulut dapat mempermudah pertumbuhan *Candida albicans*. Buah belimbing wuluh dapat digunakan sebagai pembersih gigi tiruan karena mengandung senyawa antijamur. Tujuan penelitian ini untuk mengetahui pengaruh variasi konsentrasi ekstrak etanolik buah belimbing wuluh sebagai pembersih gigi tiruan *thermoplastic nylon* terhadap pertumbuhan *Candida albicans*.

Buah belimbing wuluh dilakukan ekstraksi menggunakan metode maserasi dengan etanol 70%. *Thermoplastic nylon* berbentuk cakram dengan ukuran (10×2) mm dibuat sebanyak 16 buah. Seluruh sampel direndam dalam saliva selama satu jam kemudian dimasukan ke dalam suspensi *Candida albicans* 10<sup>8</sup> CFU/mL selama 24 jam pada suhu 37 °C kemudian dibagi menjadi empat kelompok. Setiap kelompok direndam ekstrak etanolik buah belimbing wuluh dengan konsentrasi 0%, 0,05%, 0,1%, dan 0,15% selama 5 menit pada suhu ruang kemudian dicuci menggunakan akuades dan dipindah dalam *conical tube* lalu digetarkan dengan *vortex*. Penanaman *Candida albicans* dilakukan dengan mengambil 10 µL kemudian diinkubasi selama 48 jam pada suhu 37 °C lalu dilakukan penghitungan jamur. Data dianalisis menggunakan uji ANAVA satu jalur dan LSD<sub>0,05</sub>.

Hasil penelitian menunjukkan rerata angka jamur pada kelompok 0%, 0,05%, 0,1%, dan 0,15% secara berurutan sebesar 564,75±85,496; 350,50±47,592; 245,75±22,036; 141,75±11,236. Hasil ANAVA satu jalur menunjukkan terdapat pengaruh variasi konsentrasi ekstrak etanolik buah belimbing wuluh sebagai pembersih gigi tiruan *thermoplastic nylon* terhadap pertumbuhan *Candida albicans* (p<0,05). Hasil uji LSD<sub>0,05</sub> menunjukkan perbedaan yang bermakna antar semua kelompok perlakuan (p<0,05). Kesimpulan penelitian ini adalah ekstrak etanolik buah belimbing wuluh dengan konsentrasi 0,05%, 0,1% dan 0,15% sebagai pembersih gigi tiruan *thermoplastic nylon* memiliki pengaruh yang bermakna terhadap pertumbuhan *Candida albicans*.

Kata Kunci: Ekstrak etanolik, belimbing wuluh, *Candida albicans*

### **ABSTRACT**

Thermoplastic nylon denture are always in contact with oral cavity promoting the growth of *Candida albicans*. Bilimbi fruit could be used as a denture cleanser for its antifungal compound. The purpose of this study is to identify the effect of bilimbi fruit ethanolic extract concentration variation as thermoplastic nylon denture cleanser against *Candida albicans* growth.

Bilimbi fruit was extracted using maceration method with ethanol 70%. Sixteen (16) disc-shaped thermoplastic nylon of 10X2 mm were made. The whole samples were soaked in saliva for one hour and then put into a suspension of *Candida albicans*  $10^8$  CFU/mL for as long as 24 hours with the temperature set at 37° C. These samples were then divided into 4 groups. Each group would then be soaked for 5 minutes in an ethalonic extract of bilimbi with different concentrations of 0.00%, 0.05%, 0.10%, and 0.15% under a room temperature. After being soaked, these samples were rinsed using aquades, moved into a conical tube, and then shaken using a vortex. The cultivation of *Candida albicans* was carried out by taking 10  $\mu$ L of it and incubated as long as 48 hours under a room temperature. After that, fungi calculation was done. The data were then analyzed using one way ANOVA and  $LSD_{0.05}$ .

The result show that the average numbers of fungi of groups 0.00%, 0.05%, 0.10%, and 0.15% respectively were  $564.75 \pm 85.496$ ;  $350.50 \pm 47.592$ ;  $245.75 \pm 22.036$ ; and  $141.75 \pm 11.236$ . The One way ANOVA has showed that the effect of ethanolic extract concentration variation as thermoplastic nylon denture cleanser against the growth of *Candida albicans* ( $p < 0.05$ ). The test of  $LSD_{0.05}$  resulted a significant difference among all groups of treatment ( $p < 0.05$ ). The conclusion of this study was the bilimbi fruit ethanolic extract with concentration 0,05%, 0,1% and 0,15% as thermoplastic nylon denture cleanser have significant differences against *Candida albicans* growth.

Key words: Ethanolic Extract, Bilimbi (*Averrhoa bilimbi*), *Candida albicans*