

ABSTRAK

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ANALISIS EFEKTIVITAS EKSTRAK BIJI PEPAYA (*CARICA PAPAYA L.*)
SEBAGAI DESINFEKTAN TERHADAP TOTAL *COLIFORM* PADA AIR
BERSIH

xi + 76 Halaman + 14 Tabel + 6 Gambar + 3 Lampiran

Biji pepaya (*Carica papaya l.*) mempunyai kandungan senyawa flavonoid, tanin, alkaloid, steroid/triterpenoid, dan saponin memiliki sifat antibakteri. Flavonoid dapat menghambat perkembangbiakan bakteri dengan mengganggu menembus dinding sel bakteri sehingga mengakibatkan lisis. Penelitian ini bertujuan menganalisis efektivitas ekstrak biji pepaya (*Carica papaya l.*) sebagai desinfektan terhadap total *coliform* pada air bersih.

Jenis penelitian ini yaitu penelitian analitik dengan metode eksperimen murni (*True Eksperimen*). Rancangan penelitian ini menggunakan *Response Surface Methodology* (RSM). Objek penelitian ini menggunakan sampel air mengandung total *coliform*. Variabel independen meliputi dosis ekstrak biji pepaya (*Carica papaya l.*) yaitu 10 ml/L, 30 ml/L, dan 50 ml/L dengan waktu desinfeksi selama 15, 20, dan 25 menit. Variabel terikat yaitu kandungan bakteri total *coliform* pada air. Data diperoleh dari hasil laboratorium penurunan total *coliform* setelah perlakuan desinfeksi. Analisis data dalam penelitian ini yaitu uji statistik dengan menggunakan uji ANOVA.

Hasil penelitian menunjukkan bahwa ekstrak biji pepaya memiliki sifat antibakteri yang dapat membunuh bakteri total *coliform*. Pada dosis ekstrak 10 ml/L selama 20 dan 25 menit, jumlahnya mencapai 0 CFU/100ml. Pada dosis ekstrak 30 ml/L selama 13 menit berhasil menurunkan jumlah bakteri menjadi 0 CFU/100ml. Pada dosis ekstrak 50 ml/L tidak efektif, dengan jumlah bakteri mencapai 5000 CFU/100ml meskipun waktu disinfeksi 25 menit.

Persentase penurunan kandungan bakteri total *coliform* air bersih yang optimum didapatkan pada konsentrasi 10 ml/L dalam waktu 15 menit yakni sebesar 100%. Penelitian ini dapat menunjukkan bahwa ekstrak biji pepaya dapat mengurangi bakteri total *coliform* dalam air bersih.

Kata Kunci : Ekstrak biji pepaya, Total *Coliform*, Desinfeksi, Desinfektan

Daftar Pustaka : 1 PMK + 40 Jurnal + 1 Buku

ABSTRACT

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ANALYZING THE EFFECTIVENESS OF PAPAYA SEED EXTRACT (CARICA PAPAYA L.) AS A DISINFECTANT AGAINST TOTAL COLIFORM IN CLEAN WATER

xi + 76 Pages + 14 Tables + 6 Figures + 3 Attachment

Papaya seeds (*Carica papaya* L.) have contained alkaloids, flavonoids, saponins, steroids/triterpenoids, and tannins that have antibacterial properties. Flavonoids can inhibit bacterial growth through the mechanism of disrupting the permeability of bacterial cell walls, leading to lysis. This study has aimed to analyze the effectiveness of papaya seed extract (*Carica papaya* L.) as a disinfectant against total coliform in clean water.

This research has been an analytical study with a pure experimental method (True Experiment). The research design has used Response Surface Methodology (RSM). The object of this study has been water samples containing total coliform. The independent variables have included doses of papaya seed extract (*Carica papaya* L.), which are 10 ml/L, 30 ml/L, and 50 ml/L, with disinfection times of 15, 20, and 25 minutes. The dependent variable has been the total coliform bacteria content in the water. Data have been obtained from laboratory results on the reduction of total coliform after disinfection treatment. Data analysis in this study has used statistical tests with ANOVA.

The results have shown that papaya seed extract has antibacterial properties against total coliform bacteria. At a dose of 10 ml/L for 20 and 25 minutes, the number of bacteria has reached 0 CFU/100ml. At a dose of 30 ml/L for 13 minutes, the number of bacteria has been reduced to 0 CFU/100ml. At a dose of 50 ml/L, it has not been effective, with the number of bacteria reaching 5000 CFU/100ml despite 25 minutes of disinfection. The optimal percentage of total coliform bacteria reduction in clean water has been achieved at a concentration of 10 ml/L in 15 minutes, which is 100%. This study has concluded that papaya seed extract can reduce total coliform bacteria in clean water.

Keywords : Papaya seed extract, Total Coliform, Disinfection, Disinfectant

Bibliography : 1 PMK + 40 Journals + 1 Book