

**PENGARUH PERLAKUAN PENDAHULUAN  
(PEMBEKUAN LAMBAT dan *THAWING*) DAN JENIS ALAT  
*SLOW JUICER* TERHADAP KARAKTERISTIK FISIK DAN  
KIMIA SARI BELIMBING WULUH (*Averrhoa bilimbi* L.)**

**NENI AFRIANI**

**1611121043**



**Dosen Pembimbing :**

- 1. Dr. Ir. Hasbullah, MS**
- 2. Prof. Dr. Ir. Fauzan Azima, MS**

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**Pengaruh Perlakuan Pendahuluan (Pembekuan Lambat dan *Thawing*) dan Jenis Alat *Slow Juicer* terhadap Karakteristik Fisik dan Kimia Sari Belimbing Wuluh (*Averrhoa bilimbi* L.)**

Neni Afriani, Hasbullah, Fauzan Azima

**ABSTRAK**

Penelitian ini bertujuan untuk mengetahui pengaruh perlakuan pendahuluan (pembekuan lambat dan *Thawing*) dan jenis alat *slow juicer* serta interaksi antara kedua faktor tersebut terhadap karakteristik fisik dan kimia sari belimbing wuluh (*Averrhoa bilimbi* L.) Metode penelitian ini menggunakan metode rancangan acak lengkap dalam factorial 2 x 2 dimana masing-masing perlakuan mendapat 3 kali ulangan. Faktor pertama adalah perbedaan perlakuan pendahuluan yaitu (A1) pembekuan lambat lalu di-*thawing* dan (A2) tanpa pembekuan lambat dan *thawing*, dan faktor kedua adalah jenis alat *slow juicer* yaitu (B1) *slow juicer* listrik dan (B2) *slow juicer* manual. Pengamatan yang dilakukan adalah analisis bahan baku pada buah belimbing wuluh meliputi nilai pH, vitamin C, total asam, aktivitas antioksidan, total polifenol dan total flavonoid. Analisis yang dilakukan pada sari buah belimbing wuluh meliputi rendemen, nilai pH, vitamin C, total asam, aktivitas antioksidan, total polifenol dan total flavonoid. Hasil penelitian menunjukkan bahwa perlakuan pendahuluan yang berbeda berpengaruh nyata terhadap nilai rendemen, pH, kadar vitamin C, total asam dan aktivitas antioksidan. Jenis Alat *Slow Juicer* yang berbeda berpengaruh nyata pada nilai total polifenol dan aktivitas antioksidan. Interaksi antara faktor perlakuan pendahuluan dan jenis alat ekstraksi berpengaruh nyata terhadap nilai total flavonoid sari belimbing wuluh. Perlakuan terbaik yaitu pada perlakuan sari belimbing wuluh yang tidak beri pembekuan lambat dan *thawing* dan diekstrak dengan menggunakan *slow juicer* manual dengan kandungan vitamin C 23,46 mg/100g, nilai pH 2,33, Total asam 1,6%, aktivitas antioksidan 33,59%, total polifenol 99,50 GAE/g dan total flavonoid 75,19 mg/L.

**Kata kunci:** Pembekuan lambat, *slow juicer*, sari belimbing wuluh, *thawing*

# Effect of Preliminary Treatment (Slow Freezing and Thawing) and Type of Slow Juicer on Physical and Chemical Characteristics of Belimbing Wuluh's (*Averrhoa bilimbi* L.) Juice

Neni Afriani, Hasbullah, Fauzan Azima

## ABSTRACT

This study aims to determine the effect of preliminary treatment (Slow Freezing and Thawing) and the type of slow juicer and the interaction between these two factors on the physical and chemical characteristics of belimbing wuluh's (*Averrhoa bilimbi* L.) Juice. This research method uses a completely randomized design method in factorial 2 x 2 where each treatment gets 3 replications. The first factor is the difference in the preliminary treatment, namely (A1) slow freezing and then thawing and (A2) without slow freezing and thawing, and the second factor is the type of slow juicer namely (B1) electric slow juicer and (B2) manual slow juicer. Observations made were the analysis of raw materials on belimbing wuluh's include pH, vitamin C, total acids, antioxidant activity, total polyphenols and total flavonoids. Analysis carried out on belimbing wuluh's juice included yield, pH, vitamin C, total acid, antioxidant activity, total polyphenols and total flavonoids. The results showed that different preliminary treatments significantly affected the yield, pH, vitamin C levels, total acids and antioxidant activity. Different type of slow juicer have a significant effect on the total value of polyphenols and antioxidant activity. The interaction between the preliminary treatment factors and type of slow juicer had a significant effect on the total value of polyphenols the belimbing wuluh's juice. The best treatment is in the treatment of belimbing wuluh's juice that does not give slow freezing and thawing and extracted using manual slow juicer containing vitamin C 23.46 mg / 100g, pH value 2.33, total acid 1,6%, antioxidant activity 33, 59%, total polyphenols 99.50 GAE / g and total flavonoids 75.19 mg / L.

**Keywords:** slow freezing, belimbing wuluh's (*Averrhoa bilimbi* L.) juice, slow juicer, thawing