



# **EFFECT OF MANDARIN (*Citrus reticulata*) ON JELLY FORMATION USING ALOE VERA AND PEPPERMINT**

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# *Dedication*

*This simple effort is dedicated to my beloved  
family members and teachers.*

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## Abbreviation

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<b>%</b>	: Percentage
<b>&amp;</b>	: And
<b>ANOVA</b>	: Analysis of variance
<b>AOAC</b>	: Association of Official Analytical Chemists
<b>TSS</b>	: Total Soluble Solids
<b><sup>0</sup>B</b>	: Degree Brix
<b>CHO</b>	: Carbohydrate
<b>dl</b>	: Deciliter
<b>DPPH</b>	: 2,2-diphenyl-1-picrylhydrazyl
<b><sup>0</sup> C</b>	: Degree Celsius
<b>et al</b>	: Et alii/ et aliae/ et alia
<b>etc</b>	: Et cetera
<b>G</b>	: Gram
<b>GAE</b>	: Gallic acid equivalent
<b>Kg</b>	: Kilogramme
<b>mg</b>	: Miligram
<b>TE</b>	: Trolox equivalent
<b>Cfu</b>	: Colony forming unit
<b>QE</b>	: Quercetin equivalents
<b>GAE</b>	: Gallic acid equivalents
<b>SPSS</b>	: Statistical Package for Social Science
<b>PPM</b>	: Parts per Million
<b>m</b>	: Meter
<b>DNA</b>	: Deoxyribonucleic acid
<b>spp.</b>	: Species
<b>µg</b>	: Microgram

## Abstract

Aloe vera jelly (*Aloe barbadensis Mill.*) with peppermint is a completely new, unique, and nutrient-dense product with enormous health benefits for people of all ages. Aloevera doesn't have enough vitamin C which prevents it from forming an appropriate jell structure and therefore mandarin was used to form a suitable jell structure in jelly. The study aimed to observe the effect of mandarin (*Citrus reticulata*) on jelly, as well as to evaluate phytochemicals, antioxidant capacity, and sensory and nutritional aspects. One way analysis of variance (ANOVA) was performed to find out the level of significance at  $P < 0.05$ . The experiment was carried out by producing Aloe Vera jelly at different percentages of mandarin juice, along with sugar and stevia. The sensory quality of Aloevera jelly processed with sugar (sample B) in addition to 20% mandarin juice was found to be the best among other jelly formulations. The carbohydrate, fat, protein, ash and fiber were determined at the range of 35.79% to 66.15%, 0.44% to 1.33%, 0.51% to 33.64%, 0.41% to 1.63% and 0.75% to 1.16% respectively. The vitamin C level in Aloe Vera Jelly was determined to be (0.22-0.62) mg/100g, whereas Sample B was extremely acceptable in sensory analysis; it was found to be rich in carbohydrate and total flavonoids content (TFC), as well as having low moisture content. In this study, stevia-based Aloe Vera jelly had higher protein and vitamin C content, antioxidant capability, and TPC levels than sugar-based jelly. After 15 days of storage at a cold ( $8 \pm 2^{\circ}\text{C}$ ) temperature, the total viable count was confirmed to be within permissible limits, and no fungal effect was detected. As a result of its high concentration of nutrients and phytochemicals, including antioxidants and bioactive compounds, it is categorized as a functional food and can reflect the high aspect in commercial products.

**Keywords:** Mandarin, Aloe vera jelly, Antioxidant, DPPH, Sensory properties, nutritional composition.

