

The 2nd Symposium on Plant Sciences & Product

Valorization of low-quality vanilla bean to produce concentrated vanilla syrup as a value-added biobased product

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**AGROTEKNOLOGI &
TEKNOLOGI BIOPRODUK**

INTRODUCTION

Vanilla Bean



Food & Beverages

Cosmetics

Pharmaceuticals

Perfumery

23% Supply
in Global Market



Indonesia

Supported by small holder farmers

INTRODUCTION



Vanilla planifolia



Standard quality vanilla bean



Low quality vanilla bean



Natural vanilla syrup

INTRODUCTION

Aim

- Valorize low-quality vanilla bean by applying simple technology to produce concentrated vanilla syrup
- Develop formulation and procedure of making concentrated vanilla syrup
- Analyze the quality of produced concentrated vanilla syrup

METHODS

Sample Preparation

- Bean drying
- Bean peeling

**Vanilla bean was collected from small holder farmers*



Formulation

- Variation **sugar, ratio of bean to sugar**
- Mixing condition
- Filtration



Analysis

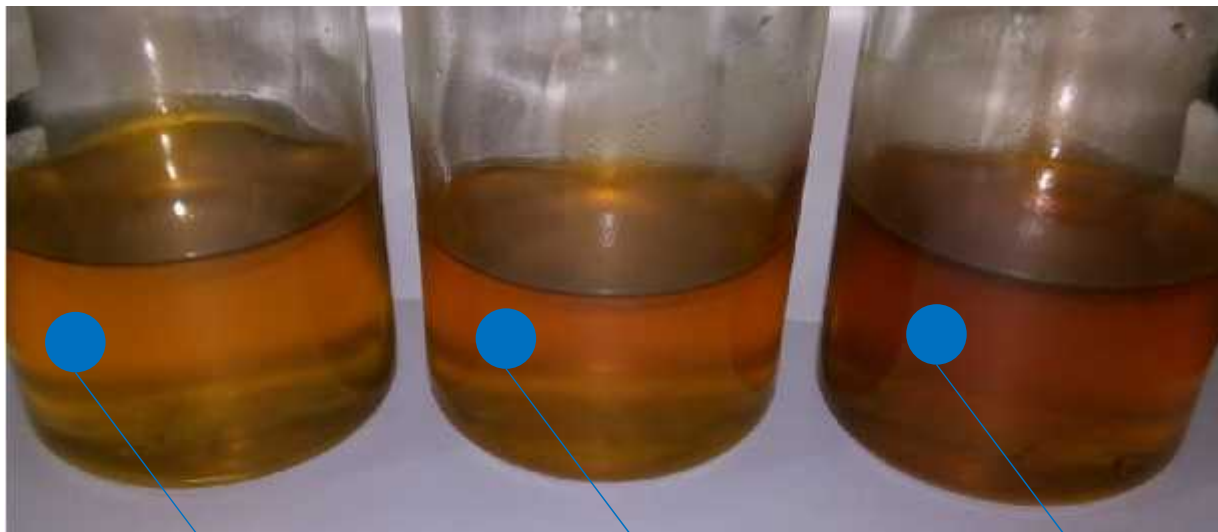
- Sugar content
- Organoleptic characterization
- Microbial analysis
- Trace elements analysis

RESULT & DISCUSSION

Selected Combination of Syrup Making

- Mixing (cooking time) 20 minutes

Ratio of vanilla bean to sugar (w/w)



LMPS (1:30)

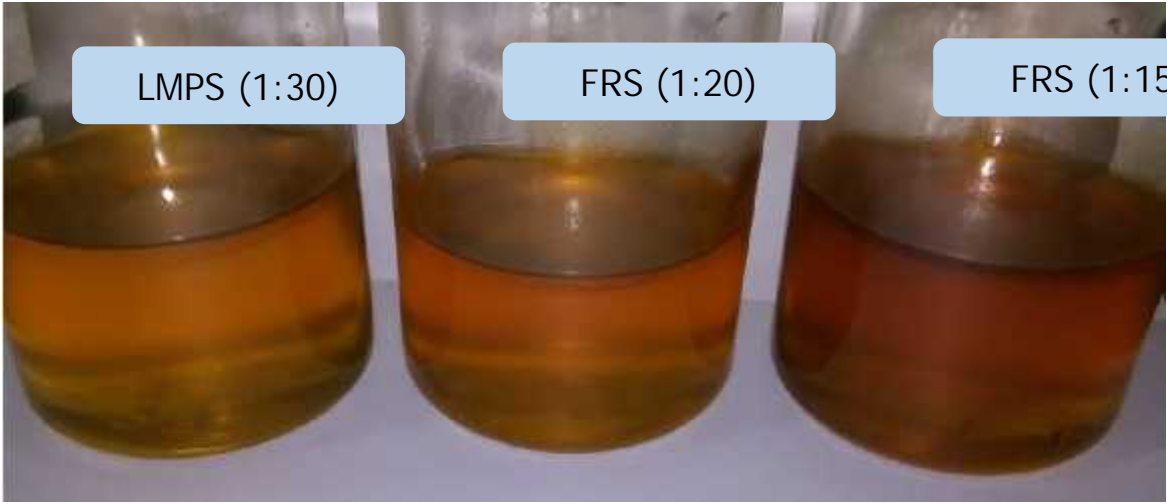
FRS (1:20)

FRS (1:15)

- LMPS:
Lumps sugar
- FRS:
Fructose syrup

RESULT & DISCUSSION

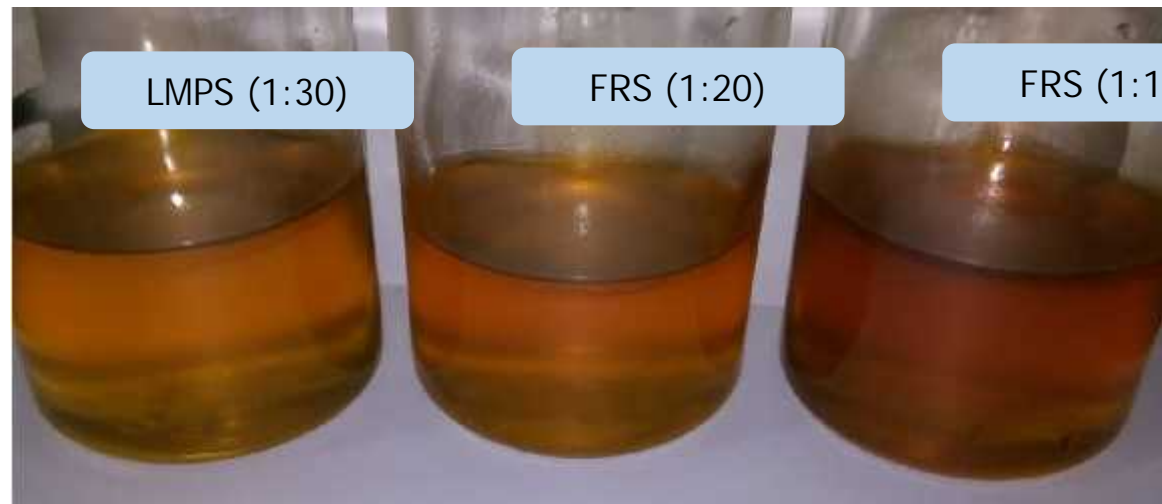
Organoleptic Test



Parameters	LMPS (1:30)	FRS (1:20)	FRS (1:15)
Color	Clear yellowish caramel color	Clear yellowish caramel color	Clear yellowish darker caramel color
Aroma	Distinct slight vanilla aroma	Distinct smooth vanilla aroma	Distinct strong vanilla aroma
Taste	Sweet and smoot taste	Sweet and slight bitter aftertaste	Sweet and slight bitter aftertaste

RESULT & DISCUSSION

Preference Test



*Scale from 1-6
1: Totally do not like 6:
totally like (most
preferred)

Parameters	LMPS (1:30)	FRS (1:20)	FRS (1:15)
Color	4.36	4.45	3.64
Aroma	3.63	3.82	4.54
Taste	4.10	3.73	3.45

RESULT & DISCUSSION

Chemical & Biological Analysis

Parameters	LMPS (1:30)	FRS (1:20)	FRS (1:15)	SNI
Sugar concentration (%)	66.8 ± 0.4	52.8 ± 0.1	54.9 ± 1.3	Min. 65
TPC (colony/ml)	430	10	10	Max. 500
TYMC (colony/ml)	< 10	3 x 10 ²	< 10	Max. 100
E. Coli (colony/ml)	0	0	0	< 3
Salmonella sp. (/25ml)	Negative	Negative	Negative	Negative/25 ml
S. aureus (colony/ml)	<1	<1	<1	Negative/ml
Hg (mg/kg)	Nd	Nd	Nd	Max. 0.03
Cd (mg/kg)	Nd	Nd	Nd	Max. 0.2
As (mg/kg)	Nd	Nd	Nd	Max. 0.5
Sn (mg/kg)	Nd	Nd	Nd	Max. 40
Pb (mg/kg)	Nd	Nd	Nd	Max. 1.0

CONCLUSION & FUTURE OUTLOOK

- Concentrated natural vanilla syrup successfully produced with the best formulation is the lump sugar combination, ratio of vanilla bean to sugar is 1:30 and mixing time for 20 minutes
- All of the syrup has clear yellowish caramel color by slightly different darker intensity, distinct vanilla aroma, and sweet aromatic taste.
- Lump sugar combination (LMPS 1:30) has all the parameters required by SNI
- Natural concentrated vanilla syrup can be an alternative bio-based product to valorize low quality vanilla bean, especially for small holder farmers in Kabupaten Sumedang.
- Need to stabilize the formula and further preference analysis, as well as economic feasibility study
- Can be unique artisan product from Small holder farmers in Kabupaten Sumedang.

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Vanilla Syrup Team Members

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Vanilla Farmers in Kabupaten Sumedang, West Java



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THANK YOU

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