



The Characteristics of Bengkuang Flour (*Pachyrhizus erosus*) of West Sumatera and Its Potential as Alternative Carbohydrate



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1. Introduction

Padang city is famous as bengkuang city and made as mascot of Padang City. During this time bengkuang often used as souvenirs from the city of Padang in the form of fresh fruit, but not much done into various food processing products. Whereas bengkuang has the potential to be processed into various food products. At harvest time the price of bengkuang in the market will certainly plummet and harm the farmers. Therefore we need a technology post-harvest bengkuang to be a more durable product. One way to increase the storage and added value of bengkuang is to process bengkuang into flour. The purpose of study was to study the characteristic of bengkuang powder of West Sumatra and its potential as alternative carbohydrate.

2. Material and Methods

The bengkuang used are from community gardens grown in the Kuranji Padang area, which are harvested at 3-4 months of age. Bengkuang was peeled, sliced at 3 cm of thickness and dried at 45°C for 17 hour to get dried bengkuang. Milling is done by using blender and flour sifted with 60 mesh size. The powder bengkuang obtained was observed physical, chemical and physicochemical properties such as water content, ash, protein, fat, carbohydrate, starch, amylose and amylopectin content, crude fiber, inulin content, swelling power, solubility, water binding capacity, bulk density, color, and amylographic properties.



B. Bengkuang flour characteristics comparison with other flour

Type of flour	Carbohydrate (%)	starch (%)	Amylose (%)	Amylopectin (%)	Crude fiber (%)
Bengkuang flour	82.87	47.23	2.58	44.65	4.46
Casava flour	83.34	78.57	32.20	46.37	1.71
Mocaf flour	88.19	81.91	32.87	49.04	1.49
Wheat flour	75.41	60.33	10.23	89.77	-
Rice flour	80.30	67.68	11.78	88.22	-
Glutinous rice flour	81.05	63.31	0.88	99.11	-
Tapioca flour	78.13	65.26	8.06	91.94	-

3. Result and Discussion

A. The Characteristics of Bengkuang Flour (*Pachyrhizus erosus*)

Characteristic	Value	Unit
Chemical content		
Water	11.01	% wb
Protein	3.53	%
Fat	0.49	%
Ash	2.10	%
Carbohydrate	82.87	%
Starch	47.23	%
Amylose	2.58	%
Amylopectin	44.65	%
Crude fiber	4.46	%
Inulin	0.12	%
Swelling power at 80°C	9.14	g/g
Solubility at 80°C	35.04	%
Water binding capacity	390.60	%
Bulk density	0.49	g/ml
Color		
L	86.34	
A	0.59	
B	14.98	
Beginning of gelatinization	74.5	°C
Temperature gelatinization	85	°C
Maximum viscosity	270	BU
Viscositas akhir	245	BU
Breakdown	151	BU
Setback	150	BU

4. Conclusion

From the research that has been done can be concluded that bengkuang flour (*Pachyrhizus erosus*) has different characteristics with other flour, but can be used as alternative source of carbohydrates.

