

TRAINING USE OF PAPAYA (*Carisa papaya L.*) DRIED FRUIT PAPAYA into SWEETS

(CASE STUDY IN THE VILLAGE BENDOTRETEK, Prambon DISTRICT, DISTRICT SIDOARJO).

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ABSTRACT: *The purpose of the implementation of community service in the village bendotretek is to realize the program "Democracy as Economic Empowerment towards Poverty Alleviation Sidoarjo Prosperity, Independent and Fair" as well as one implementation of Tri Dharma College is in the field of community service. . While this activity is followed by PKK Mothers , Youth and women youth clubs , village and surrounding communities . Training method used is described Participant (practice) the stage of making candied dried papaya , along with the materials that need to be added either to improve the physical properties of papaya and shelf life of dried candied papaya . Following the steps of preparing dried candied papaya . The results obtained from this community service. There are 2 kinds of processed fruit preserves, candied namely wet and dry sweets. Obtained after draining wet candied fruit from a sugar solution, while the dried candied sweets are obtained when first produced (wet sweets) sun dried.*

KEYWORDS: Training, Use Of Papaya, Dried Sweets.

INTRODUCTION

This article reports the results of a community service activities in rural districts bendotretek Prambon Sidoarjo regency which was held on 3 March 2014 which was attended by approximately one hundred participants from Mothers PKK, youth clubs and youth village , which later article this is planned to be published in international journals . Sidoarjo regency is the smallest and most densely populated district in East Java with an area of 63438.534 hectares or 634.39 km² , flanked times Surabaya (32.5 km) and time Porong (47 km) with potential : Agricultural land : 28,763 ha Sugarcane plantations : 8164 Ha Land farms : 15,729 hectares More garden soil , residential , industrial , residential and other Bendotretek Village is one of villages consisting of three (3) banjo, located in District Prambon, Sidoarjo regency, which is located at an altitude between 510 + m to + 550 (Anonymous , 2000) .

On Food Processing Fruit Preserves

Papaya (*Carica papaya L*) is a plant that originated from tropical America. Center spread of plants suspected to be in the southern part of Mexico and Nicaragua. Together gob - gob Portuguese in the 16th century, these plants also spread to various continents and countries, including the continent of Africa and Asia as well as the country of India. From India, this plant

spread to many other tropical country, including Indonesia and the islands of the Pacific Ocean in the 17th century (Kalie, MB, 2000). Although more and more types and kinds of imported fruit, papaya remained popular in Indonesia. In addition to cheap, they contain nutrients was complete. Seeds, leaves, stems, and roots are very useful as a medicine. Papaya fruit is also known as the low price and taste. Diverse varieties and availability throughout the year helped cement the papaya as the fruit of an idol (Anonymous, 2010). Besides high nutritional, papaya is a fruit that has a high content of antioxidants. These include vitamin C, flavonoids, folate, vitamin A, minerals, magnesium, vitamin E, potassium, fiber and vitamin B. Antioxidants combat free radicals in the body and maintain a healthy cardiovascular system and provide protection against colon cancer (Superkunam, 2010).

Pigment

Dyes belong to this group are naturally in plants. The dye is composed of α and β -carotene, xantofil, chlorophyll and anthosyanin. The dye causes each plant red orange or yellow, brownish yellow, greenish and reddish. Orange-red pigment caused by carotenoids that are soluble in oil. Karotein are not stable at high temperatures and if the oil flowing steam, then the orange-red color will disappear. Carotenoids cannot be eliminated by the process of oxidation (Sudarmadji, 1989). The dye β -carotene has the chemical formula $C_{40}H_{56}$, which has a symmetrical compounds. The middle is a long chain of carbon atoms with double bonds that can be exchanged for a single bond. At both ends of the chain are hexagon ring (6) (Allen, 1998). The structure of beta-carotene can be seen in the image below:

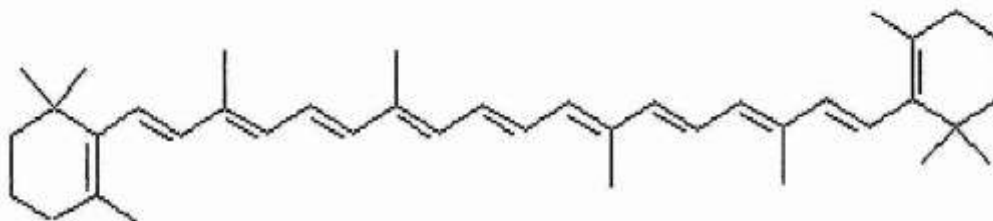


Figure 2.1. The structure of beta-carotene (Allen, 1998).

Besides carotene compounds having the following properties :

- 1 . Oil soluble and insoluble in water
- 2 . Slightly soluble in alcohol and methyl alcohol
- 3 . Soluble in chloroform, benzene, and petroleum ether
- 4 . Unstable at high temperatures or stereo isomers that have changed
- 5 . Sensitive to oxidation, auto-oxidation and light
- 6 . Has the characteristics of light adsorption
- 7 . Easily oxidized by enzymes lipoxidase (Sudarmadji, 1989).

Beta carotene is the most important component in the food that is orange. Beta carotene which we consume consists of two retinyl groups, which in the small intestine will be broken down by the enzyme beta-carotene dioxygenase into retinol, an active form of vitamin A. Carotene can be stored in the liver in the form of pro vitamin A and is converted into vitamin A in accordance with needs of the body (Astawan, 2008).

Based on research Fitriany (2008), use the right temperature on making candied dried star fruit ranged between 75°C - 90°C with long drying time of 12-15 hours. According to Van Buren, (1979), the use of drying temperature is too low resulting in long drying time, while if the temperature is too high the texture of the material would be less good. Preliminary results

showed that the temperature of 80°C and a long drying time above 12 hours will produce candied dried star fruit with hard texture, it is necessary to decrease the drying time in a long time under 12 hours.

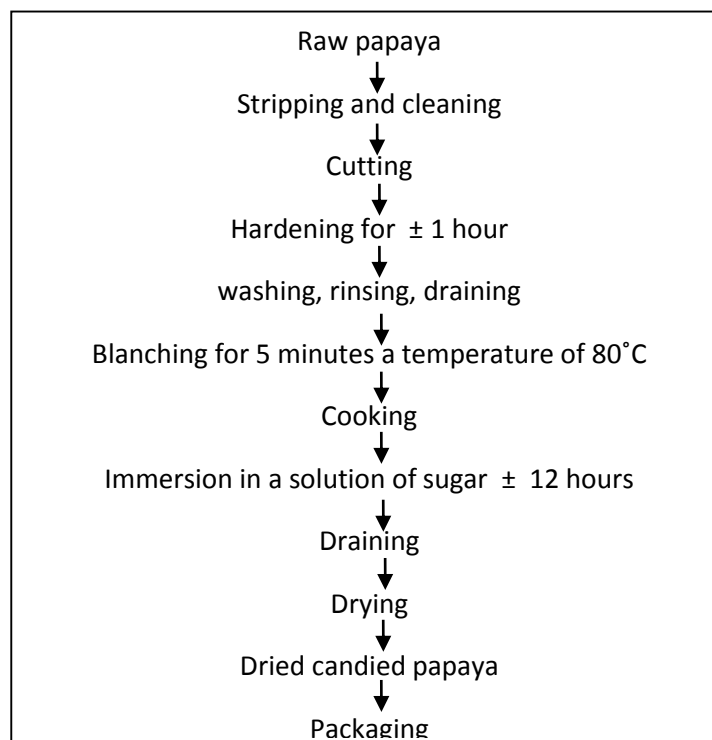
According to Agnieszka and Lenart (2009), can bind to sugar-free water in the material so that most of the water available for microbial growth thus water activity in these materials can be reduced, due to the process of osmosis (water discharge in foodstuffs) and the entry of sugar into the liquid ingredients in slowly replacing some of the water that comes out. In addition to the blanching process material to help keep the sugar solution can be entered into the tissue material. According Falade, et al. (2007), natural pigments are compounds that are unstable and easily broken during processing by heating. According Sulisna (2002), the use of $\text{Ca}(\text{OH})_2$ in the immersion of food is due to salt $\text{Ca}(\text{OH})_2$, including a strong electrolyte, can be perfectly ionized water, Ca ions would be easy to make the process of absorption (absorption events) in the network so that the material can prevent enzymatic browning process that is caused by the effect of Ca ions on amino acids.

RESOLUTION METHOD

a. Counseling and training as well as discussions with the community about the processing of dried papaya fruit papaya fruit into preserves, as well as the benefits of papaya processing into dried candied papaya. This is necessary so that the participants can compare the length of the storage period and the value-added of fresh papaya with dried candied papaya.

b. Training manufacture of dried candied papaya. Participants described the stages of making candied dried papaya, along with the materials that need to be added either to improve the physical properties of papaya and shelf life of dried candied papaya. Following the steps of preparing dried candied papaya.

Comparison of papaya: water: sugar on.



Sources : Dwi Hendaradi, I Made Nada, 2006.

Comparison of papaya: water: sugar on process of making dried candied papaya is 1 kg: 1 liter: 0.5 kg. In the hardening process whitening added at a concentration of 0.2-0.3%, with 1 liter of water is added whitening 2-3 grams. Addition of whitening function is to strengthen the network of fruit. Addition of citric acid added lemon juice when cooking is complete. This serves to lower the pH to 38 to 44. In acidic conditions, will inhibit the growth of microbes.

c. Introduction to equipment / technology simple manufacture dried candied papaya fruit. Alternative use of sunlight in the drying process is to use a dryer, so the drying time can be shortened and the result is more hygienic. If using drying using the sun takes 3 days, but by way of drying using a dryer, it takes 2 days (the dryer is recommended rack type dryer and the temperature 500 C).

RESULTS AND DISCUSSION

There are 2 kinds of processed fruit preserves, candied namely wet and dry sweets. Obtained after draining wet candied fruit from a sugar solution, while the dried candied sweets are obtained when first produced (wet sweets) sun dried. Fruits are commonly used to make candied fruit wet is kind of hard enough, such as nutmeg, mango, kedondong, to and fro, and others. While the fruits are commonly used to make candied dried fruit is a type of software such as papaya, soursop, and others.

Candied Various Business With A Small Capital



In this time of extension and training, review least one example of a small business that has a pretty good prospect and still rarely rival business selling various sweets. We know many of various wide variety of processed foods, one of which is candied. Candied including a form of processed food that is much liked by the people. This preserves the product can be made from various raw materials such as various fruits, seaweed until the spices can be processed into sweets. Raw materials used can be selected according to the availability of existing materials.

Sweet taste typical mixed fruit flavor is perfect to be enjoyed in a variety of contexts and opportunities. Candied type most often found is that using basic materials candied fruits such as fruit cermai , nutmeg , kedondong , mango , and others . In addition to fruit, some other foodstuffs can also be made sweets, such as red peppers, pariah, ginger, papaya leaves, and

others. With the diversity of the basic materials sweets, making these products have diverse taste anyway.

Byproducts of this process of making candied fruit syrup from solution is her immersion . Candied fruit either yellowish , chewy when bitten , and hold in store for two weeks to a month .

MATERIALS

- 1 . Half- ripe fruit 10 kg
- 2 . Granulated sugar 5 kg + 2 kg for extra syrup
- 3 . 1 teaspoon whiting
- 4 . Sodium benzoate 4 teaspoon
- 5 . 15 grams of salt
- 6 . Vanilla 2 tablespoons
- 7 . 7 liters of clean water

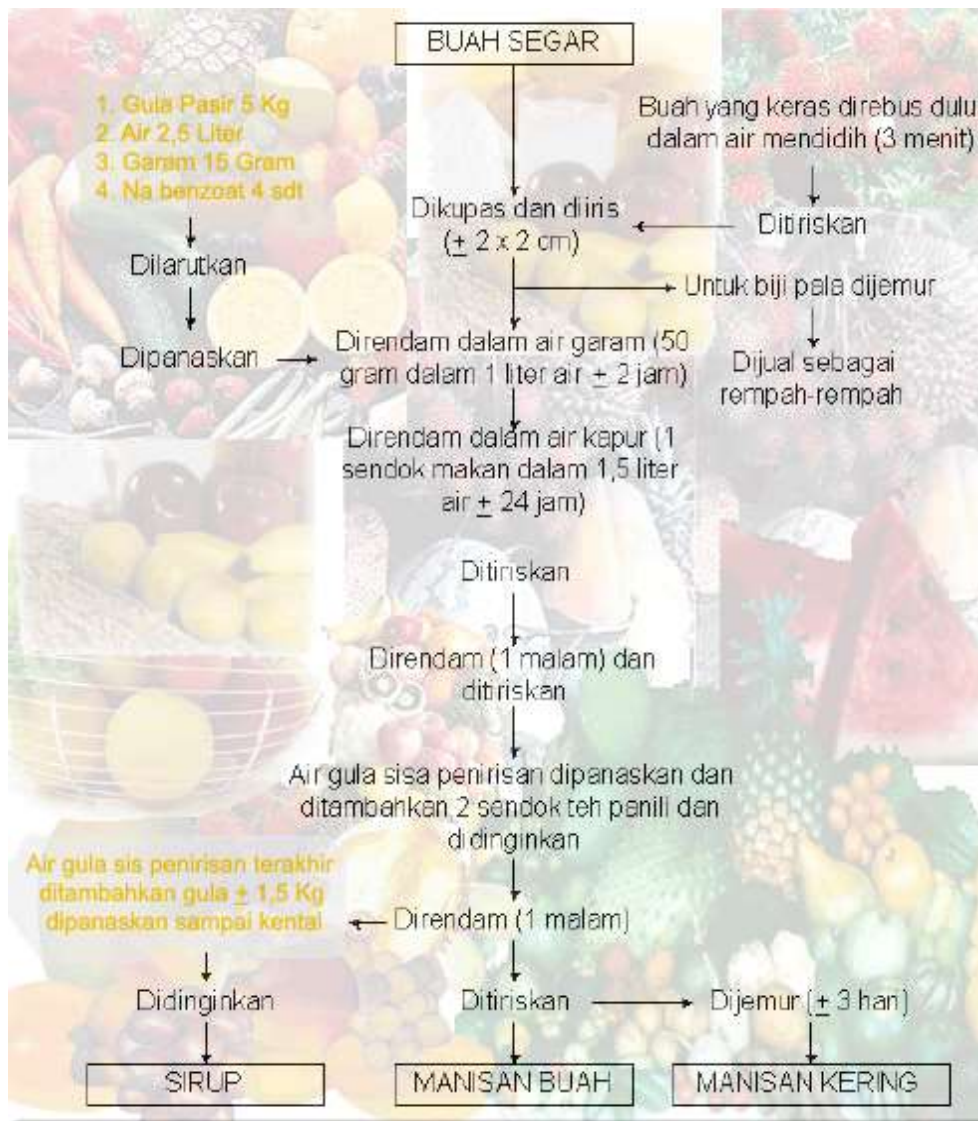
II . TOOLS

- 1 . knife
- 2 . pot
- 3 . sieve
- 4 . tablespoon
- 5 . teaspoon
- 6 . plastic bags
- 7 . candle
- 8 . basin
- 9 . Stove or furnace .

HOW MAKING

- 1 . Peeled then sliced fruit with $\frac{3}{4}$ size 2 x 2 cm ; For hard fruit , boiled slices in boiling water for 3 minutes then drain .
- 2 . Soak in hot water (50 g in 1 liter of water) for 2 hours and then drain ;
- 3 . Soak again in lime water (1 tablespoon whiting 2 kg in 1 liter of water) for 24 hours , then drain ;
- 4 . Enter the granulated sugar in 2 kg liter of water , stirring until smooth . Add salt and sodium benzoate and heat to boiling ;
- 5 . Enter the fruit pieces into the boiling sugar solution until the half- ripe fruit . Remove the pan from the stove or stove and let sit (soak) 1 night , then drain ;
- 6 . Heat water draining residual sugar and add vanilla and re-enter the fruit pieces . Remove the pan from the stove or stove and let stand one night . In the morning drain , to get the candied fruit ; * Add sugar 2 kg in the last draining residual sugar water and heat until thick syrup and chill to serve .
- 7 . Drying preserves the results of draining wet to dry (24 hours ... 3 days) , to get the candied dried ;
- 8 . Enter the sweets in plastic and cover with wax until the meeting .

Flow Chart Making Fruit Preserves



V. Notes:

To get a good dry sweets, her drying must be absolutely perfect. So soon after obtaining candied wet, the sweets direct sun drying, so that the growth of microorganisms (function, mold) is inhibited. If the rainy season, can be dried over coal fire furnace maintained. Drying over coals not directly attached to the furnace, but given buffer so that the heat can be regulated.

This activity received a positive response from the participants, proved many questions that arise and the desire of participants to try and develop it into a small business

Analysis of Raw Materials

Chemical Composition Content * Content **

Water Content of Total Sugar 94 (%) 92.50 (%) –
2.71 (%)

Total Acid 2.41 (%) –

Description = *: Results Analysis, **: Reference (Lingga (1995)).

The results of the analysis of the water content of fresh fruit starfruit has a larger amount of literature on water content, by a margin of 1.5%, although still within the same variety is the green star fruit varieties. This is consistent with the statement Suliantri and Rahayu (1990) that the chemical composition usually varies, depending on the variety and external factors (soil and climate).

Total sugar and total acid analysis of the results cannot be compared with the reference as a reference by Ling (1995), there has been no testing of total sugar and total acids contained in fruit.

Comparison of Fresh Fruit, Best Treatment Results and SNI Candied Dried Fruit Dried Products C3L2.

Table 3. Comparison of the chemical quality of fresh fruit, dried candied best treatment and dried fruit SNI

Type of test	Fresh Fruit	Best Treatment Candied Dried	SNI Dried Fruit *)
Total Water Content	94,0% 2,71%	24,70% 42,63%	Max. 31% - -
Sugar Total Acid	2,41%	0, 83%	

Sources: *) SNI.01-3710-1995

Organic acid content of the most widely owned star fruit is citric acid . Citric acid is a weak organic acid found in many fruits and plants are very sensitive to the air (oxidation) , easily damaged or lost by the once in a while, iron and copper salts, heating at high temperature , enzyme oxidation , air free and light (Pearson, 1977). Organic acids that are the most dangerous in the fruit star fruit is oxalic acid compound, can be found in a relatively small amount of fruit (Noonan and Savage, 1999). Heating process can reduce the solubility of the oxalate and boiling can reduce oxalate levels by throwing boiling water , soaking in salt and increase the supply of calcium to the fruit so as to neutralize the effect of oxalate(Catherwood , et al . , 2007) .

Although papaya is not a major commodity in the village Bendotretrek , papaya is a plant in the yard between the villagers Bendotretrek. For good quality papaya mostly sold fresh by the residents. But many also in quality papaya less, eg bird and bad papaya consumed fresh. People often throw it away or used for animal feed. To get around this, the quality is not good papaya serve processed foods that are still healthy, reasonably long shelf time and add value to the papaya . One way to provide training on food processing of papaya , one of which is dried candied papaya .and simple technology manufacture these products . This activity received a positive response from the participants, proved many questions that arise and the desire of participants to try and develop it into a small business.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. Participants described the process of processing the fruit into dried candied fruits and their demonstration of the stages of making candied dried , the introduction of processed foods as well as the introduction of other pieces of equipment / technology simple manufacture of candied dried fruit .
2. This activity was greeted with enthusiasm by the participants , is evident from the number of questions of the participants were either dried or candied questions about other processed foods from fruit items .
3. Participants were given counseling on administration , entrepreneurship tips , how to set up cooperatives , marketing , consumer behavior in buying , small business bookkeeping , as well as on taxation in the world of small industry .
4. The best treatment is treatment with the concentration of Ca (OH) 2 1.8 % and a long drying time 11 hours .
5. Material requirements planning day for the manufacture of candied dried on a small scale industry is 10 kg of green star fruit , 9 kg of sugar , 0,024 kg of salt and 0.18 kg of Ca (OH) 2 with the availability of the material is relatively abundant in Malang . Total cost of materials needs per day is USD 91 896 .

SUGGESTION

1. Preliminary studies should be conducted before making proposals to the Village Bendotrek , because of the preliminary study in getting information about potential bendotrek village . And there should be counseling and training on agricultural product processing technology is another potential Bendotrek Village in agriculture and processed products like mango rice .
2. bendotrek village head should collaborate with relevant agencies , in connection with the potential of the area .
3. Results of counseling and training should be followed up by the head of the village, so the village has an icon as a producer bendotrek alternative especially candied dried .

REFERENCES

- Asriani , E.N. Making juice kueni industrial scale . Tastes , X (2) , February 1991: 80-81.
- Agnieszka , C. , and A. Lenart , 2009. Rehydration and sorption properties osmotically pretreated Of Freeze - Dried Strawberries . Journal of Food Engineering . , 97 (2010) : 267-274
- Catherwood , DJ , Savage GP , Mason SM , and JJ Scheffer , 2007. Oxalate Content of Corns Cormels of Japanese Taro (Colocasia esculenta L. Schott) and The Effect of Cooking . Journal of Food Composition and Analysis . , 2000 (20) : 147-151 .
- Fitriany , S. 2008. Effect of Temperature and Drying Against Older Some Quality Confection starfruit (Averrhoa bilimbi L.) Dry . Journal SAGO . , 7 (1) : 32-37 .

- Falade , K.O. , Igbeka , J.C. , Ayanwuyi , F.A. , 2007. Kinetics of Mass Transfer and Colour Changes During Osmotic Dehydration of Watermelon . *Journal of Food Engineer* . 80 (3) , 979-985 .
- Hertami , D. Planting papaya (*Carica papaya L.*) and its utilization . Jakarta : BPLPP Agricultural Training Center , 1976. This 27-28 .
- Husein Umar , 1999; Thesis and Research Methods for Business Thesis , King Grafindo PT Persada , Jakarta .
- <http://jawatimuran.wordpress.com/2013/11/24/sejarah-pembentukan-kabupaten-sidoarjo/>
<http://dwiluky.wordpress.com/2011/02/21/sejarah-kabupaten-sidoarjo/>
 Downloaded <http://www.scribd.com/doc/13564847/Perilaku-konsumen> 8th February 2013.
- James F. Engel - Roger D. Blackwell - Paul W. Miniard in Saladin (2003 : 19) .
- Dwi Hendardi , I Made . , 2006. Dried Candied Papaya Production Process (*Carisa papaya L.*) and Their financial analysis . Proposed Research . Faculty of Agricultural Technology . Udayana University .
- Kwik Kian Gie , 1997; Encyclopedia of Economics , Business and Management , Delta Panangkal , Jakarta .
- Kolter , Philip , Keller , Kevin Lane . 2006: Marketing Management : Twelfth Edition . New Jersey : Pearson Education , inc .
- Linga , P. 1995. Carambola planting . Peneber Organization . Jakarta .
- Wet candied nutmeg . Bogor : Project Guidance and Development of Small Industries . Ministry of Industry , 1986. Thing . 5-10 .
- Candied dried nutmeg . Bogor : Center for Research and Development of Food Technology , IPB , 1981. 7 things .
- Soursop sweets . Bogor : Project Guidance and Development of Small Industries . Ministry of Industry , S.A. 2 things . (Pamphlets) .
- Noonan S , and Savage G.P. , 1999. Oxalate Content of Food and Its Effect On Humans . *Asia Pacific Journal of Clinical Nutrition* . , 8 (1) : 64-67
- Originally posted 2011-06-22 02:46:15 . Republished by Blog Post Promoter downloaded 8th February 2013.
- Pearson , D. 1977. The Chemical Analysis of Foods . Chemical Publishing Company , Inc. . , New York .
- Saraswati . Making candied nutmeg . Jakarta : Bhratara Script Works , 1986. 22 things .
- Sudarmadji , S. , Bambang Haryono and Suhardi . , 1997. Analysis of Food and Agriculture . Liberty . Yogyakarta.
- Source: http://id.shvoong.com/social-sciences/economics/2154807_small-business-management/#ixzz2KkOKkk8E downloaded 8th February 2013.
- Sulisna , R. 2002. Making Candied Dried Noodles Pumpkin (*Cucurbita pepo L.*) Study of Lime Concentration and drying Old Against Physical , Chemical and Organoleptic . Thesis . THP majors , UB Faculty of Agricultural Technology . Malang .
- Sincere Tambunan , 2000, the Strategic Measures to Improve Economic Competitiveness of Regions, Papers in ISEI XIV Congress , 21-23 April 2000 in Makassar , South Sulawesi .
- _____ , 1997 , Encyclopedia of Economics , Business and Management , Publisher Delta Panangkal , Jakarta .
- _____ , 2003, the Small Industry Survey / Household in Ponorogo 2002 , published by the Institute for Community Research and Service at the University of Muhammadiyah , Roxburgh .

Van Buren , J.P. , 1979. The Chemistry of Texture in Fruits and Vegetables . Journal of Texture Studies. , 10 (1) , 1-23

CONTACT RELATIONS

Women in Development Information Center , WWII , LIPI , Jl . Gen. . Gatot Subroto 10 Jakarta 12910 .

Source: Tri Margono , Detty Suryati , Sri Hartinah , Handbook of Food Technology , Center for Women in Development Information WWII - LIPI in cooperation with the Swiss Development Cooperation , 1993