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Utilization of Salak Sidimpuan (*Salacca sumatrana* Becc) as A Nata De Salacca Substrate in Sitaratoit Village South Tapanuli Selatan Sumatera Utara

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Abstract. Sitaratoit village is a village in South Tapanuli district, North Sumatera. The majority of people in that village drape his life from agriculture products. Major commodities agriculture product from the village is salak Sidimpuan. Knowledge about salak processing in village still very poor. Salak consumed or sold on condition fresh fruit. At some moment salak fruit can overproduction so the price is very low. A low price causing farmers did not harvest the salak which might cause waste. Nata de salacca product should be one of the alternative solutions to overcome this problem. The aims of the program were to provide information about salak waste treatment become nata de salacca. This program was initiated with the laboratory experiments and cooperate with local government and farmers. The following action was to accompany the farmers who applicate the nata production process. Results from the laboratory experiment showed that the best composition of substrate and water ratio was 1:4.

Keywords: Sitaratoit Village, South Tapanuli, Salak Waste, Nata de Salacca

Abstrak. *Desa Sirataratoit merupakan desa di Kabupaten Tapanuli Selatan, Sumatera Utara. Mayoritas masyarakatnya menggantungkan hidupnya dari hasil pertanian. Komoditas utama dari desa tersebut adalah salak Sidimpuan. Pengetahuan masyarakat desa Sitaratoit tentang pengolahan salak masih sangat minim. Buah salak hanya dikonsumsi atau dijual dalam bentuk buah segar. Pada saat musim salak biasanya jumlah salak melimpah sehingga harganya sangat rendah. Rendahnya nilai jual salak menyebabkan banyak masyarakat yang tidak memanen salaknya sehingga salak menjadi busuk bahkan dibuang menjadi sampah. Pemanfaatan salak sebagai subsrat nata de salacca dapat dijadikan sebagai solusi limbah salak. Kegiatan ini bertujuan untuk memberi pengetahuan kepada masyarakat bagaimana cara pengolahan limbah salak menjadi nata de salacca*

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sebagai upaya meningkatkan kesejahteraan masyarakat setempat. Kegiatan ini dimulai dengan penelitian awal di laboratorium dan melakukan kerja sama dengan pemerintah dan kelompok tani kemudian melakukan sosialisasi tentang bagaimana pembuatan, potensi dan prospek nata de salacca. Pada penelitian awal di laboratorium menunjukkan bahwa desain konsentasi substrat nata de salacca terbaik dari segi warna dan tingkat ketebalan adalah pada perlakuan 1kg salak : 4 liter air.

***Kata Kunci**: Desa Sitaratoit, Tapanuli Selatan, Limbah Salak, Nata de Salacca*

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1. Introduction

Sitaratoit village is a village in South Tapanuli district, Nort Sumatera. The majority of people in that village drape his life from agriculture products. Major commodities agriculture product from the village is salak Sidimpuan. Diversivication of salak in this village not maximal, salak consumed or sold on condition fresh fruit. Salak is kind of fruit content very high ethylene so spoilage this fruit is very rapid [1]. Quickly decay of salak fruit will trigger the build up of salak spoilage it will be salak waste. Salak waste are also many found in the harvest because farmers didn't harvest the salak fruit caused very low prices.

Nata de salacca product should be one of the alternative solutions to overcome this problem. According to Nadyah, et. al., [2] salak fruit content sugar so salak can be used as a nata substrate. Nata de salacca product had never been process in Tapanuli Selatan district so it was expected that the manufacturing of nata de salacca can improve their people welfare. In terms of economy the development of salak become nata are appropriate because capital production not to hight. Nata also contain high coarse fibers that can give health benefit for the body [3].

One of group or organization the community in the Sitaratoit village is quite active involve some activities is the farmers group that driven by the local government. The group is devided into 4 groups of 10 a member of man and women. The groups of farmer Sitaratoit village high interest development of a salak fruit.

Dedication to community program initiated following action farmers groups sitaratoit village is aim to used salak sidimpuan waste become nata de salacca in an effort to increase salak sidimpuan values and people welfare. The expected benefit of this program is information and knowlage about nata the salacca processing.

2. Method

Cooperate with Local Government and Farmers

This program was initiated with the cooperate with local government and community of Sitaratoit village. This program involves the farmers in this village.

Design Concentration of *Nata De Salacca* Substrate

Design of concentration of nata needs to know the optimal of substrate of nata de salacca. Design for optimize nata de salacca substrate concentration made in research (Table 1) .

Table 1. Optimize nata de salacca substrate concentration

Treatment	Concentration of Salak : water (kg/L)
1	control (coconut water)
2	1: 2
3	1: 4
4	1: 6

Prepation of Nata De Salacca Substrate

The process of substrate of nata de salacca initiated is collection os salak overripe. Shelled the salak and separated the pulp of salak from its seed and than the pulp ground until smooth then added of water based on the treatment. The pulp of that has smooth strained to get fruits extract. The extract of salak fruit can be used to nata de salacca substrate.

The Production of Nata De Salacca

The extract of salak fruit boiled to boiling, then added sugar about 5 % (50 g sugar in 1 L salak extract). Futhermore added food grade ZA about 0,1 % (1 g ZA in 1 L salak extract). The functionof ZA as a source nitrogene for the growth of *Acetobacter xylinum*. Than added vinegar until ph of substrate reached 4 – 5. During the process of boiling usually appear froth, the froth must be waste because can inhibits the formation of nata. After the substrate boiling, pour it into sterile container about 1 L and close the container with sterile paper, incubated the substrat for 1 night. Futhermore *Acetobacter xylinum* inoculums cast into the substrate about 20% than incubated until 10 days. After the incubation period reached 10 day nata de salacca can be taken or harvested. Nata has formed cleared then note weight and thickness nata.

Socialization of Nata De Salacca

The aims of the socialization were to provide information and knowlage about salak waste treatment become nata de salacca, it other the ways at this stage also explain how the potentian and the next prospect nata de salacca to increase salak sidimpuan values and people welfare.

Assistance Nata De Salaccca Processing

The aims of the assistance nata de salacca processing to know is the farmer group able to make nata de salacca.

3. Result and Discussion

Concentration Design of *Nata De Salacca* Substrate

Design of concentration of nata needs to know the optimal of substrate of nata de salacca. Design for optimize nata de salacca substrate concentration made in research (Table 1). The most optimal substrate concentration is the second treatment, composition of substrat and water ratiowas 1:4 (Figure 1). The second treatment of nata having the surfave more flattened or not wavy. The second treatment nata also having weight almost the similar with control weight. Visually nata in this treatment having a color brighter than the first treatment so this treatment suitable the next nata de salacca processing.

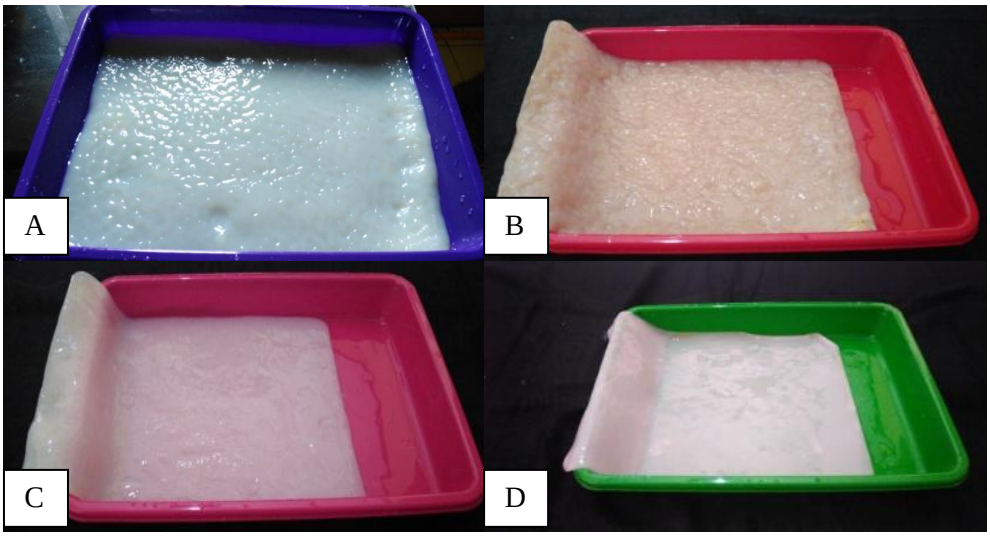

Figure 1. Optimize nata de salacca substrate concentration (salak : water)
A. Control **B**. 1 : 2 **C**. 1 : 4 **D**. 1 : 6

Nata De Salacca Character

The success of production of nata can be seen from several factors such as thickness, weights and rendemen (Table 2). The nata thickness and weights formed is a reflection of optimum *A. xylinum* metabolism. The bigger value thickness and weights of nata shows that *A. xylinum* metabolism is optimum. The optimum of *A. xylinum* metabolism occurred if nutrition is available consistent with the numbers of needed [4].

Table 2. The effect of salak substrate concentration on nata de salacca character

Treatment	Nata De SalaccaCharacter		
	Thickness (cm)	Weight (g)	Rendemen (%)
control	0,73	452,6	45,6
1 : 2	0,6	504,3	49,8
1 : 4	0,6	437,3	43,2
1 : 6	0,36	329,6	32,5

This research showed that the thickness and weight of nata is varied (table 2). The thickness of the nata formed is 0,36-0,6 cm at the various substrate treatment and weight of nata formed is 329,6-504,3 g. The nata thickness formed influenced by the concentration of sugar, the surface area of the fermentation and long fermentation. *A. xylinum* produced high nata if a container fermentation wider and flat because more oxygen available and Nata was produced more effectively with long incubated [4].

The addition high concentration of salak substrate could increase the number of sugar in medium, so could be stimulate to increase thickness and weight of nata. If initial sugar concentarion was low, there were not enough substance for production of nata [5].

Socialization of Nata De Salacca

Sosialization nata de salacca was executed in Sitaratoit Village, South Tapanuli distric. Socialization nata de salacca in Sitaratoit is very well. Participants like and seen seriusly the material provided (Figure 2).

Figure 2. Socialization activity of nata de salacca production

Assistance in Nata De Salaccca Processing

After socialization was done the next activities is assistance in nata de salacca processing. The purpose of assistance in the nata de salacca processing is to know how participant understanded material provide and to know if participant capable produce nata de salacca. If participants could produce nata de salacca it will be to open new businesses and salak waste could utilization. Figure 3 shows the food product from nata de salacca.

Figure 3. Food product from nata de salacca **A.**nata de salacca pudding **B**. nata de salacca drink

4. Conclusion

Results from the laboratory experiment showed that the best composition of substrat and water ratiowas 1:4, so this treatment suitable the next nata de salacca processing. Socialization nata de salacca in Sitaratoit is success because participant could produce nata from salak substrate.

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