

# Improving The Quality of Fig (*Ficus carica. L*) Processing from *Posdaya Lancar Barokah Pokoh Kidul Wonogiri*

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**Abstract**— Pokoh Kidul is one of the villages in Wonogiri District, Wonogiri Regency which is very strategic for the development of agro-industrial tourism. The fig plant is one of the main plants in Pokoh Kidul. Understanding and knowledge of harvest time, fig processing by Posdaya Lancar Barokah needs to be improved through counseling and processing practices. The activity method is carried out through several stages, namely counseling, processing practices and analysis of processed results. The results show that there is an increased understanding of partners in processing tea and fig syrup. This can be seen from the increase in phenolic syrup content from 0.3167% to 14.56% after counseling. The total sugar content increased from 14.42% to 27.10%. Processed tea with sunshine heating has greater antioxidant activity than heating with an oven which is 35.42%.

**Keywords**— agro-industrial, fig, Posdaya Lancar Barokah, processing

## I. INTRODUCTION

*Pokoh Kidul* is one of the villages in *Wonogiri District*, Wonogiri Regency which is very strategic for the development of agro-industrial tourism. This is because Pokoh Kidul Village is adjacent to the Gajah Mungkur Reservoir (OWGM) Wonogiri Tourism Object. Fig (*Ficus carica. L*) is one of the most cultivated plants in this area. The fig plant is one of the oldest plants in the world. This plant belongs to the Moraceae family whose fruits are commonly used for food and medicine [1]. The leaves of these plants can be extracted for their active compounds and used as antibacterials [2]. In addition to the leaves, the fig also contains active compounds that can act as antioxidant and antibacterial compounds such as polyphenol compounds [3]. *Posdaya Lancar Barokah* is a community group in Pokoh Kidul that processes figs into syrup and leaves into tea.

Figs have various colors according to their varieties such as green (*Green Jordan*), brown (*Brown Turkey*), red (*Red Israel*), purple (*Purple Jordan*) and many other varieties. The color of this fruit indicates the presence of active compounds that can act as antioxidants. Processing figs into food and beverage products will increase the interest of the

people to consume this nutrient-rich fruit, one of which is syrup.

The raw material used will greatly affect the taste and aroma of syrup. Figs have a distinctive taste and aroma. The aroma of this fruit will be stronger along with the fruit ages. Fruits that are still young or immature will not have a strong aroma, less sweet taste and a not optimal active compounds. *Posdaya Lancar Barokah* does not have a good understanding of the fig physiology so it still uses immature fruit as a raw material for making syrup. Therefore we need counseling and training on figs physiology and postharvest technology to improve the quality of syrup..

## II. METHODS

This is the methods which is used in this research.

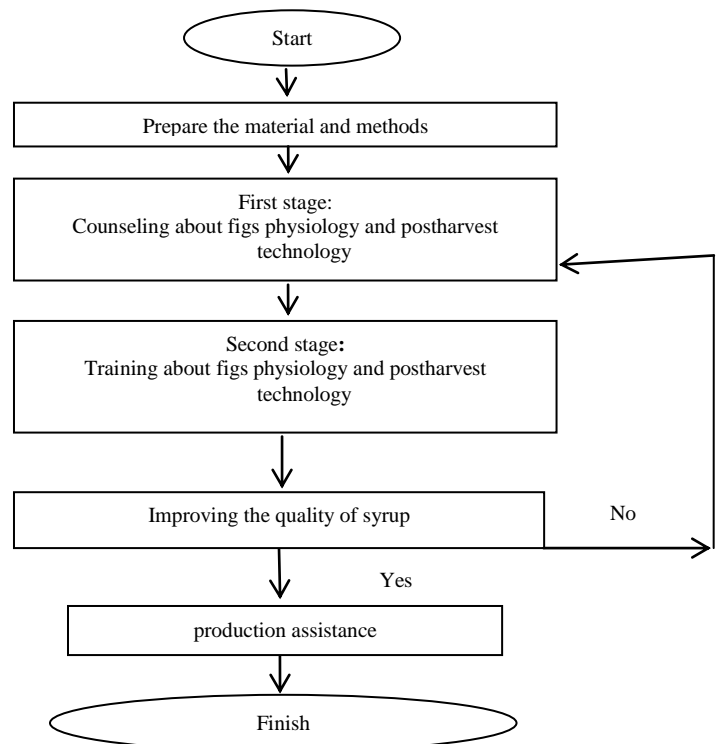


Figure 1. Flow chart of activity methods

**Problem Solving Method:**

1. Counseling about figs physiology and postharvest technology

Counseling about postharvest physiology of fig. The community is given an understanding of the figs optimal harvest time to be processed so that the products with the best nutritional content will be produced. Then continued with postharvest technology counseling. The community is given an understanding of the good processing of fig syrup and tea so that they do not damage their nutritional content. Implementation by lecturing, and discussion (question and answer).

2. Training about figs physiology and postharvest technology.

Training in making fig syrup and fig leaf tea. Improvement of syrup processing, namely heating and sterilization temperatures. Analysis was carried out on the content of sugar and phenol syrup before and after counseling. Tea processing is carried out in two ways, namely sun heating and oven. Then analyzing the tannin content and antioxidant activity.

3. Production assistance

Assistance during production so that the products which is produced have a stable quality.

**III. RESULT AND DISCUSSION**

*Posdaya Lancar Barokah* has been processed fig fruits and leaves into syrup and tea. However, the understanding of the figs physiology and postharvest technology to get an optimal products was still low. The fruit which was used for raw materials for making syrup was still immature so that the phenol and sugar content are low (Figure 2).



Figure 2. (a) immature fig; (b) mature fig

Figure 2 (a) shows the fig which was used as raw material for making syrup at *Pokoh Kidul*. The color of the fruit is green, whereas the mature Brown Turkey variety has red color as shown in Figure 1b. Red indicates high antioxidant content. Table 1 shows the differences in sugar and phenol content of syrup before and after counseling.

**TABLE 1. SUGAR AND PHENOL CONTENT OF SYRUP**

| Analysis | Percentage (%)    |                  |
|----------|-------------------|------------------|
|          | Before counseling | After counseling |
| Sugar    | 14,385            | 26,94            |
| Phenol   | 0,3178            | 14,555           |

After counseling activities on the figs physiology and postharvest technology, *Posdaya Lancar Barokah* uses mature figs as raw material for making syrup so that the total sugar and phenol content increases. The fruit which is used not yet mature optimally, so that sugar and phenol content are not significantly increased. Beside that the heating process also decreases the phenol content of syrup. The fig has the highest concentration of polyphenols, at 1.090-1.110 mg/100 g of fresh fruit <sup>(4)</sup>.

In addition to syrup, other products which was produced are fig leaf tea. The drying process of fig leaves uses two methods, with solar heat (non oven) and oven. After being analyzed, it turns out that fig leaf tea with natural heating using sunlight (solar heat) has a higher tannin content and antioxidant activity than using oven. This is because the temperature setting in the oven is still manual so that the temperature rise is difficult to control. The tea leaves dry faster. The results of the analysis of tannin content and antioxidant activity of fig leaf tea can be seen in Table 2.

**TABLE 2. TANNIN CONTENT AND ANTIOXIDANT ACTIVITY OF FIG LEAF TEA**

| Analysis             | Percentage (%) |          |
|----------------------|----------------|----------|
|                      | Oven           | Non Oven |
| Tannin               | 1,21           | 2,03     |
| Antioxidant activity | 5,8            | 35,37    |

The antioxidant activity of fig leaf tea with natural drying using sunlight is higher than using an oven. Therefore, for the next production process the *Posdaya Lancar Barokah* chooses sun drying to maintain the tannins content and the quality of fig leaf tea. There are several factors that can result the occurrence of chemical oxidation of active compounds such as time, temperature, humidity, moisture material or water content of the material, thickness of the material when it was dried, air circulation, and material surface area <sup>(5)</sup>.

**IV. CONCLUSION**

After training and mentoring activities, there has been an increase in the quality of the fig syrup. Sugar and phenol levels increased to 27.10% and 14.56%. Processed tea with

sunshine heating has higher antioxidant activity than heating with an oven which is 35.42%.

#### ACKNOWLEDGMENT

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