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Aloe Vera Cultivation and Post-Harvest Processing for Daily Life

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Abstract. Aloe vera was often wasted, even though it actually has many benefits. During a morning walk in the Taman Kradenan Asri housing complex, many aloe vera plants were found to be thrown away. When asked to the owner of the plant, why were so many of his aloe vera plants thrown away? The owner of the aloe vera replied that this plant grows very quickly, even though its use was only a little, namely for washing hair as a shampoo supplement and its mucus to help heal minor wounds. This fact encouraged community service activities to be carried out in the housing complex, namely through training for mothers of the Dasa Wisma. This community service activity aims to describe skills and knowledge in developing higher quality aloe vera which could later be used to produce processed products for mothers who are members of the Dasa Wisma in RW 11, Sukorejo Village in Semarang City. The results of this community service show that: (1) The knowledge of the local women who participated in the training and mentoring regarding Aloe Vera cultivation and post-harvest processing for daily life in RW 11, Sukorejo Village, Gunungpati District, Semarang City, most of the 50% of participants had knowledge in the category Enough.; (2) Skills of local women who participated in training and mentoring on Aloe Vera Cultivation and Post-Harvest Processing for Daily Life in RW 11, Sukorejo Village, Gunungpati District, Semarang City, the majority of whom, namely 55.5% of participants, had skills in the sufficient category.

Keywords: aloe vera; beverages and snacks; post-harvest processing

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INTRODUCTION

Three types of aloe vera are commercially cultivated in the world, namely Curacao aloe or A. Barbadensis Miller, Cape aloe or A. Ferox Miller, and Socotrine aloe, one of which is A. chinensis Baker (Katri, W. et. al., 2022). The physical appearance of the leaves between one type and another is different. The type of aloe vera developed in Asia, including Indonesia, is A. Chinensis Baker which comes from China, but is not a native Chinese plant. This type has been commercially planted in West Kalimantan and is better known as Pontianak aloe vera which was described by Baker 1977 (Tri, Y. H., et. al., 2015).

Based on research conducted by Harismah K., Asngad A., & Anif S. (2001) that Acetobacter xylinum bacteria and the addition of brown sugar can improve the quality of de coco fiber food. Processing aloe vera into fiber food as an effort to provide added value to the development of industry, especially aloe vera, which is absolutely necessary to anticipate the development of the upstream sector and diversification of processed products that have high economic value.

The implementation of this Community Service activity aims to enable the community to have knowledge and skills in developing higher quality aloe vera which can later be used to produce processed products. In addition, unproductive land can be utilized properly. The benefits for the community service implementation team can increase experience and expertise in solving problems that occur in the community so that they can provide the best solutions as a contribution to the Community of RW 11, Sukorejo Village, Gunungpati District, Semarang

Community Service Activities are one of the pillars of the Tri Dharma of Higher Education, namely education, research, and community service. Basically, higher education does not only provide education for its students, but also develops the knowledge gained so that it is useful for the community. One form of community service is social service.

The essence of community service itself is

"from the community, for the community, and by the community". This means that community service can be created and carried out by members of the community themselves. In essence, the perpetrators of community service aim to be present in the community and become members of the community who want to jointly advance the community towards a better social direction for the community environment.

During a morning walk in the Taman Kradenan Asri Housing Complex, many aloe vera plants were found to be thrown away. When asked to the owner of the plant, why were so many of his aloe vera plants thrown away? The owner of the aloe vera replied that this plant grows very quickly, even though its use was only a little, namely for washing hair as a shampoo supplement and its mucus to help heal minor wounds. This fact encouraged community service activities to be carried out in the housing complex, namely through training for mothers of the Dasa Wisma.

This community service activity aims to: (1) describe knowledge in developing higher quality aloe vera which can later be used to produce processed products for mothers who are members of the dasawisma in RW 11, Sukorejo Village in Semarang City; and (2) describe skills in developing higher quality aloe vera which can later be used to produce processed products for mothers who are members of the dasawisma in RW 11, Sukorejo Village in Semarang City.

METHOD

Implementation Method

The training activities carried out by the service team were divided into three terms. The first activity or term was the delivery of material by applying expository and discussion methods. The second activity was through a tutorial model with feedback. The third activity was through a practical method, mothers were invited to the park in RW 11 to be given training. The maximum number of participants attending was 15 people (Rosnita, S. Yulida, R. & Andriani, 2022).

The problem handling offered to participants was done using lecture and discussion methods, questions and answers, and practice. The problem handling using these three methods aims to invite participants to understand about aloe vera cultivation. The next step was to practice the understanding that has been conveyed in the form of making aloe vera preparations as food and drinks. The techniques used were demonstration and mentoring.

In this community service activity, a lecture or expository method was used, namely through the delivery of information about aloe vera cultivation. The speakers in this activity were a community service team according to the agreed tasks.

The next method used was question and answer. This method was applied before and after the service team has finished delivering the material. Question and answer and discussion activities were used to explore information and skills that have been possessed by the participants, so that data was obtained according to the needs and real conditions of the service participants. This method was also used as feedback for the service team in order to modify the training materials presented (Slamet, A., Nurlaila, M. & Nur Achmad, F., 2021).

The third method was demonstration and practice. Demonstration was not done once, but many times so that participants become skilled. Demonstration was done classically but also individually. Repeat demonstration was also done during mentoring. The follow-up activity of the demonstration is consolidation, some participants were asked to practice as an example for other participants. Consolidation was carried out according to agreement, if it was felt that it could be practiced directly, then the next step was to practice together. The practical and production activities carried out by the participants include: (1) find the right location; The first step in starting aloe vera cultivation was to find a piece of land to work on. There were several factors to consider when looking for a suitable place to start this activity. First, build a good relationship with the landowner, if the participant does not own the land. Make a clear agreement between the participant and the landowner. Second, make sure the condition of the land was suitable for planting. Conduct tests to check for nutrient deficiencies, which could cause unhealthy and stunted plants. Also consider other aspects, such as how the irrigation was, whether the land is sloping or flat, whether the land is exposed to the sun, and what the surrounding conditions were; and (2) create a community; One of the most rewarding outcomes of starting an aloe vera farm was the community that forms around the site. Farming in the middle of an urban area certainly attracts the attention of local residents because it looks unique.

Evaluation and Success Criteria

The success rate of this training was carried out through direct observation and through performance assessment and product results. Assessments were also carried out on the

preparation process, implementation, and in the cultivation of aloe vera which refers to the indicators listed in the prepared rubric.

Knowledge is the result of knowing, and this occurs after people sense a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge generally comes from experience and can also be obtained from information conveyed by others, obtained from books, newspapers, or mass media, electronics. Sensing occurs through the five human senses, namely the senses of sight, smell, taste and touch. Most knowledge is a very important domain for the formation of a person's actions (over behavior).

Data analysis

The instrument used to measure the increase in knowledge of mothers who were members of the dasawisma in RW 11, Sukorejo Village in Semarang City about aloe vera cultivation was a test. The test used contains closed questions and then chooses the right or wrong answer. If the training participant answers correctly (according to the answer key) they get a score of 1, if the respondent answers the question incorrectly (not according to the answer key) they get a score of 0, then the scores for each respondent were added up and then calculated and the results are obtained in the form of a percentage.

The data analysis used to describe the level of knowledge of mothers who were members of the Dasa Wisma in RW 11, Sukorejo Subdistrict in Semarang City regarding the cultivation and post-harvest processing of aloe vera is presented in the formula (Sudijono, A., 2005); Sugiyono. (2011); Syofian, S. S. (2011); Arikunto S. (2006); Sukarjo. (2008):

$$P = \frac{X}{Y} x100\%$$

P: Percentage of subjects answering correctly; X: number of questions answered correctly; Y : number of questions.

Category of knowledge of training participants about cultivation and post-harvest processing of aloe vera Table 1 below.

Table 1. Category of training participants knowledge about cultivation and post-harvest processing of aloe vera

Number	Training participants' knowledge score interval (%)	Category
1	80<X≤100	Very good
2	60<X≤80	Good
3	40<X≤60	Medium
4	20<X≤40	Poor
5	0<X≤20	Very poor

The skill categories of participants in aloe vera cultivation and post-harvest processing follow the criteria in Table 2 below.

Tabel 2. Category of participant skills in aloe vera cultivation and post-harvest processing

Number	Training participant skill score interval (%)	Category
1	80<X≤100	Very good
2	60<X≤80	Good
3	40<X≤60	Medium
4	20<X≤40	Poor
5	0<X≤20	Very poor

RESULTS AND DISCUSSION

The Knowledge of Aloe Vera Cultivation and Post-Harvest Processing for Daily Life

The knowledge of Dasa Wisma mothers in RT 03 RW 11, Sukorejo Village, Gunungpati District, Semarang City about Aloe Vera Cultivation and Post-Harvest Processing for Daily Life was improved through lectures, training and mentoring. The training participants were 20 Dasa Wisma mothers in RW 11, Sukorejo Village, Gunungpati District, Semarang City. The number of Dasa Wisma in RW 11 is twelve, because there are 120 Heads of Families, but the participants are among them. The participants involved come from all Dasa Wisma in RW 11, but not all members could be involved for various reasons.

Table 3. Frequency distribution of knowledge of Dasa Wisma mothers in RW 11 after training on Aloe Vera Cultivation and Post-Harvest Processing for Daily Life

Number	Training participants' knowledge score interval (%)	Category	Absolute frequency	Relative percentage frequency (%)	Cumulative percentage frequency (%)
1	80<X≤100	Very good	2	10	10
2	60<X≤80	Good	3	15	35
3	40<X≤60	Medium	10	50	75
4	20<X≤40	Poor	5	25	100
5	0<X≤20	Very poor	0	0	-
Number of scores			20	100	

The results of the data analysis after the training were presented in Table 3, which shows that there were 10% (2 people) of participants in the very good knowledge category; while 15% (3 people) of participants were in the good knowledge category; 50% (10 people) of participants were in the medium knowledge category, and 25% (5 people) of participants were in the poor knowledge category.

The skills of Aloe Vera Cultivation and Post-Harvest Processing for Daily Life

The skills of Dasa Wisma mothers in RT 03 RW 11 Sukorejo Village, Gunungpati District, Semarang City in Post-Harvest Processing for Daily Life were improved through lectures, training/direct practice in the field and mentoring conducted by Dra. Ely Rudyatmi, M.Pd. The post-harvest processing demonstrated was processing aloe vera into Nata de Aloe Vera. The results of Nata de Aloe Vera were then processed into soft drinks.

The next activity which was an implementation of the aloe vera processing training was holding a competition to process Nata de Aloe Vera into various food preparations. The competition held was at the RT level. The mothers of Dasa Wisma RT 01, 02, and 03 processed Nata de Aloe Vera into side dishes in the form of omelettes. The competition criteria are taste, cooking techniques (large fire, frying process), appearance (color, shape, smell and texture), cleanliness, punctuality in cooking, and togetherness. The mothers of Dasa Wisma RT 02 became the champions of the Aloe Vera cooking competition.

The skills of Dasa Wisma mothers in RT 03 RW 11, Sukorejo Village, Gunungpati District, Semarang City in Aloe Vera Cultivation were improved through lectures, training/direct practice in the field and mentoring conducted by Dra. Ely Rudyatmi, M.Pd.. The training participants were 20 mothers from Dasa Wisma in RW 11, Sukorejo Village, Gunungpati District, Semarang City, who were taken to the seeding location. The number of Dasa Wisma in RW 11 was twelve, because there are 120 Heads of Families, but the participants are among of them. The participants involved come from all Dasa Wisma in RW 11, but not all members could be involved due to certain reasons. Below was the frequency distribution of the Skills of Dasa Wisma mothers in RT 03 RW 11 on Aloe Vera Cultivation and Post-Harvest Processing for Daily Life.

The results of the mentoring showed that only 18 mothers were able to complete the planting of

Table 4. Frequency distribution of the skills of Dasa Wisma mothers in RW 11 in carrying out training on Aloe Vera Cultivation and Post-Harvest Processing for Daily Life

Number	Training participant skill score interval (%)	Category	Absolute frequency	Relative percentage frequency (%)	Cumulative percentage frequency (%)
1	80<X≤100	Very good	1	5,5	5,5
2	60<X≤80	Good	4	22,2	27,7
3	40<X≤60	Medium	10	55,5	83,2
4	20<X≤40	Poor	3	16,8	100
5	0<X≤20	Very poor	0	0	-
Number of scores			18	100	

aloe vera, the rest, namely 2 people, could not complete it for various reasons, such as being busy with office and household tasks. The results of the analysis of Aloe Vera Cultivation (aloe vera) that had been carried out by mothers, 5.5% were in the very good category, while the rest, namely 22.2% were in the good category, 55.5% in the sufficient category, and 16.8% in the less category.

Inhibiting and Supporting Factors for Activities

In the implementation of this activity, several obstacles were encountered, for example to produce a delicious and chewy taste of Aloe vera products, which were usually produced from fresh aloe vera species that were large in size and of good quality. In relation to obtaining superior seeds, the implementers of the community service were still very limited in terms of information and knowledge. On average, the mothers who were members of the Dasa Wisma in RW 11 were employees, so the mentoring schedule often changes. This would had an impact on the sustainability of mentoring which would reduce the quality of Nata de Aloe Vera products.

The supporting factors for the implementation of this activity were the curiosity of the participants to get to know various new products made from Aloe vera besides candied fruit, pudding, and Aloe vera jelly. In addition, the enthusiasm and participation of the Dasa Wisma RW 11 were very high, this was indicated by the many questions that arise related to the material presented by the community service and during the practice of making seeds and planting Aloe Vera. Support from the Head of RW and RT in the RW 11 environment were very high and the facilities and infrastructure were sufficient because they were supported by the UNNES Postgraduate School (SPs). Good cooperation between the Community Service Team and the Dasa Wisma RW 11, Sukorejo Village, Gunungpati District, Semarang City, so that the team could easily coordinate with the participants of the activity. This was in line with Irwanto's opinion, (2021) that in community service there was support and obstacles, including the difficulty of adjusting the time between the work program implementation schedule and the free time of the community, especially farmers and housewives. The supporting factor for community service activities was that the participants were enthusiastic and respond positively to the community service activities carried out by the PKM team (Andi, P. & Misveria, V. W., 2022).

Below were some photos of Aloe vera cultivation training activities and post-harvest processing which was used to make everyday foods and light drinks.

Figure 1. Mothers of Dasa Wisma RW 11 Post-Harvest Processing Training for Daily Life when opened by the Chairwoman of RW 11

Figure 2. The current Chairperson of RW 11 and the senior Chairperson of RW 11, are involved in a cooking competition whose raw material is aloe vera as an implementation of the training

Figure 3. The mothers of Dasa Wisma RW 11 held a competition to process Aloe Vera into food and soft drinks after carrying out Post-Harvest Processing Training for daily life when it was opened by the Chairwoman of RW 11.

CONCLUSION

The knowledge of Dasa Wisma mothers who participated in the training and mentoring on Aloe Vera Cultivation and post-harvest processing for daily life in RW 11, Sukorejo Village, Gunungpati District, Semarang City, namely there are 10% (2 people) participants in the category of very good knowledge; while 15% (3 people) participants are in the category of good knowledge; 50% (10 people) participants are in the category of sufficient knowledge, and 25% (5 people) participants are in the category of less knowledge. The skills of Dasa Wisma mothers who participated in the training and mentoring on Aloe Vera Cultivation and post-harvest processing for daily life in RW 11, Sukorejo Village, Gunungpati District, Semarang City, namely only 18 mothers were able to complete the planting of aloe vera, the rest, namely 2 people, were unable to complete it due to various reasons such as being busy with office and household tasks. The results of the analysis of the skills of the Dasa Wisma mothers showed that 5.5% were in the very good category, 22.2% in the good category, 55.5% in the sufficient category, and 16.8% in the less category.

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