

## Training on Processing Pear Fruit Skin with the Application of Zero Waste to Become a Fruit Skin Chips Product as an Effort to Realize an Ecotourism Village

Ni Luh Putu Putri Setianingsih<sup>1\*</sup>, I Wayan Sudiarta<sup>2</sup>  
Program Studi Teknologi Pangan dan Hasil Pertanian, Fakultas Pertanian,  
Universitas Warmadewa

**Corresponding Author:** Ni Luh Putu Putri Setianingsih [putriameell@gmail.com](mailto:putriameell@gmail.com)

### ARTICLE INFO

*Keywords:* Abiansemal Dauh Yeh Cani Village, Pears, Fruit Skin Chips, Zero Waste

*Received :* 12, July

*Revised :* 14, August

*Accepted:* 16, September

2024 Setianingsih, Sudiarta: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



### ABSTRACT

Abiansemal Dauh Yeh Cani Village is one of the villages in Abiansemal District. Organic waste processing, especially fruit peel waste, is a serious challenge in realizing a sustainable ecotourism village. One example of organic waste that is often overlooked is pear peel. Although pear flesh is widely consumed, the peel is usually considered waste and is thrown away. Pear peel contains fiber, vitamins, and minerals that are beneficial for health. The economic potential of pear peel can be processed into products with added value, such as fruit peel chips. The purpose of the training is to manage organic waste sustainably and apply the principle of zero waste. This training has also equipped participants with technical skills in the processing process, from raw material preparation and drying to packaging.

## **INTRODUCTION**

Badung Regency is a tourism area; the main problem faced is waste due to the rapid population growth (Yuliastuti et al., 2013). One of the villages in Badung Regency is Abiansemal Dauh Yeh Cani Village, which is divided into six banjar dinas, namely Batanbuah, Kedampal, Banjaran, Tegal, Sempidi, and Belawan. Consisting of eight customary banjars, namely Umopoh, Sempidi Kedampal, Tegal, Banjaran, Batanbuah, Bantas, and Belawan (Budiyanto et al., 2022). In Abiansemal Village, Badung Regency, there are Micro, Small, and Medium Enterprises that have a strategic role in maintaining Balinese culture (Ni Komang Yunika Dewi, 2021). Abiansemal Dauh Yeh Cani Village is one of the villages in Abiansemal District. This village has a total population of 5,941 people, of which 2,992 are male and 2,949 are female (I Made Sastra Wibawa, 2023).

Organic waste processing, especially fruit peel waste, is a serious challenge in realizing sustainable ecotourism villages (Ni Luh Made et al., 2024). One example of organic waste that is often overlooked is pear peel. Although pear flesh is widely consumed, the peel is usually considered waste and is thrown away. Pear peel contains fiber, vitamins, and minerals that are beneficial for health. The economic potential of pear peel can be processed into products with added value, such as fruit peel chips (Suryani et al., 2024).

The zero-waste concept encourages the maximum utilization of all resources and minimizes waste production (Trisutrisno & Awaliah, 2024). By processing pear skins into chips, we not only reduce organic waste but also create new products with economic value (Maksum et al., 2024). In addition, the development of processed products based on waste can support efforts to realize independent and sustainable ecotourism villages (Ni Komang Yunika Dewi, 2021). Ecotourism villages not only offer natural beauty but also provide educational experiences about good environmental management.

One of the natural ingredients that has the potential as an antioxidant is pears. Pears are also superior in flavonoid content. Compared to the flesh of the fruit, many fruits, such as pears, contain more phenolics in their skin. Pear skin has 3 to 4 times the phytonutrients. From previous studies, pear skin extract in 70% ethanol contains flavonoids, tannins, saponins, and alkaloids. Flavonoids have many health benefits, one of which is producing antioxidants (Patricia & Saputri, 2020).

A small business in the snack industry, also known as the home industry, is very important to grow local potential, create independence, and meet life needs (Febriani & Saleha, 2021). Although this activity is very beneficial on a small scale, beginners in the production industry generally do not require higher education; however, they need skills, precision, accuracy, and perseverance (Masruroh & Suharningsih, 2017). Therefore, the home industry is very important to grow and explore community creativity, create jobs, and help increase family income (Cahyani et al., 2021). The spirit and values of local wisdom from its unique and creative community (I Wayan Eka Santika, 2022).

The main objective of this training is to increase the economic value of pears, which are often wasted, especially the skin (Andre Yusuf Trisna Putra, 2024). By processing pear skins into chips that have a selling value, it is hoped that it can provide additional income for village communities. In addition, this training also aims to raise awareness of the importance of sustainable organic waste management and implementing the zero waste principle (Ramanda et al., 2024). Through this training, it is hoped that village communities can actively contribute to efforts to create environmentally friendly and sustainable ecotourism villages and be able to optimally utilize the potential of local natural resources. In addition, developing a method for processing pear skins into chips by implementing the zero waste principle. Carrying out pear skin processing training for village communities. Analyzing the obstacles faced in implementing the training. Evaluating the impact of training on improving the community's economy and environmental awareness.

Digital marketing is an effort made in terms of marketing using internet-connected devices with various strategies and digital media with the aim that companies can stay in touch with consumers through online communication channels (Nursetiani & Safaria, 2024). Digital marketing is a form of contemporary marketing as well as a new hope and breakthrough for companies and is expected to have a positive impact on the company (Lestari & Saifuddin, 2020).

## **IMPLEMENTATION AND METHODS**

The main objective of this training is to increase the economic value of pears that are often wasted, especially the skin. Processing pear skins into chips that have a selling value is expected to provide additional income for the village community. In addition, this training also aims to raise awareness of the importance of sustainable organic waste management and implementing the zero waste principle. Through this training, it is hoped that the village community can actively contribute to efforts to realize an environmentally friendly and sustainable ecotourism village and be able to optimally utilize the potential of local natural resources. In addition, developing a method for processing pear skins into chips by implementing the zero waste principle. Conducting pear skin processing training for the village community. Analyzing the obstacles faced in implementing the training. Evaluating the impact of training on improving the community's economy and environmental awareness.

The training materials will include theory and practice. The theory explains the importance of organic waste processing, the benefits of pear skin, the concept of zero waste, the process of making fruit skin chips (peeling, washing, slicing, soaking, drying, frying/oven, packaging), and food safety standards. Furthermore, using the practice method explains the direct demonstration of the process of making fruit skin chips and the practice of making chips by participants in groups.

The training method that will be used is a combination of lectures, namely the delivery of theoretical material by competent speakers. Furthermore, a live demonstration method of the process of making fruit skin chips is carried out by the instructor. Then it is carried out with a practical method: participants are directly involved in the process of making fruit skin chips. The last stage is the discussion method: allowing participants to ask questions and discuss the material that has been presented.

## **RESULTS AND DISCUSSION**

Community service activities entitled "Pear Peel Processing Training with Zero Waste Implementation into Fruit Peel Chip Products as an Effort to Realize Ecotourism Villages" have been successfully implemented. This training provides an understanding to the community about the importance of processing organic waste, especially pear peels, into value-added products. As a result, the community is now able to produce fruit peel chips that have good market potential. In addition to improving the community's economy, this activity also contributes to efforts to realize a clean and sustainable ecotourism village. Through this training, participants are taught pear skin processing techniques starting from the washing, drying, and frying stages. In addition, participants are also given knowledge about selecting raw materials, determining the right frying temperature, and product packaging. With this knowledge, it is hoped that the community can produce fruit skin chips with good and consistent quality.

This community service activity has succeeded in achieving its main objective, which is to increase public awareness of the importance of organic waste management and encourage the utilization of pear peel waste into products with economic value. This training is also in line with the government's efforts to realize environmentally friendly ecotourism villages. This community service activity aims to empower village communities through training in processing pear skins into chips. By implementing the zero-waste concept, we strive to reduce organic waste and create value-added products. This training not only teaches new skills but also encourages innovation in the use of local resources. It is hoped that this activity can contribute to realizing a sustainable ecotourism village.

Through training on processing pear skin into chips, we invite the village community to actively participate in environmental conservation efforts. By implementing the principle of zero waste, we turn waste into a promising business opportunity. This training covers all stages of production, from selecting raw materials to packaging the final product. We are confident that this activity will raise public awareness of the importance of good waste management and open up new jobs. This community service activity aims to improve the welfare of village communities through the development of processed products based on local resources. By focusing on processing pear skin into chips, we want to create unique and high-value products. This training is expected to increase community income and encourage village economic growth. In addition, this activity is also in line with government efforts to realize sustainable tourism in villages.

Documentation of the Pear Skin Product Processing Training into Pear Skin Chips.



**Figure.1 Counseling of Resource Persons (Supervisors of Warmadewa University Community Service Lectures) Warmadewa University Community Service Team to Abiansemal Dauh Yeh Cani Village Group Partners, Bali**



**Figure.2 Counseling of Resource Persons (Supervisors of Warmadewa University Community Service Lectures) Warmadewa University Community Service Team to Abiansemal Dauh Yeh Cani Village Group Partners, Bali**



**Figure.3 Group Photo of the Warmadewa University Community Service Team (Lecturers and 29 Students) and 8 representatives of the Abiansemal Dauh Yeh Cani Bali Village Group Partners**



**Figure. 4 Group Photo of Warmadewa University Community Service Team**



**Figure.5 Training on making Pear Skin Chips Products by the Unwar Community Service Team for Village Group Partners of Abiansemal Dauh Yeh Cani Village, Bali**



**Figure.6 Pear Skin Chips Innovation Product**

After the successful initial training, the next phase will focus on expanding the reach of participants and deepening knowledge about pear skin processing. Activities to be carried out include further training for wider community groups, the development of variations in the taste and texture of chips, and optimization of the production process to improve efficiency and product quality. Thus, it is hoped that more and more people will be involved in efforts to process organic waste into value-added products while enriching the potential of the village as a sustainable ecotourism destination.

The next stage will be directed at commercializing pear skin chip products. Activities that will be carried out include developing marketing strategies, creating attractive product branding, and expanding distribution networks. In addition, an evaluation of consumer preferences will be carried out for the development of new, more innovative products. Thus, it is hoped that pear skin chip products can become typical village souvenirs and contribute to increasing community income. The next stage will integrate pear skin processing activities with various aspects of life in Abiansemal Dauh Yeh Cani Village. Activities to be carried out include the development of organic pear gardens, utilization of production waste for compost or animal feed, and the formation of cooperatives to manage product production and marketing. Thus, it is hoped that pear skin processing activities can become a driving force for a sustainable village economy and improve the welfare of the community as a whole.

The next stage will focus on community education and empowerment efforts. Activities to be carried out include counseling on the importance of organic waste management, entrepreneurship training for micro, small, and medium enterprises, and the development of environmental education curriculum in schools. Thus, it is hoped that public awareness will grow of the importance of protecting the environment and utilizing natural resources sustainably.

## CONCLUSIONS AND RECOMMENDATIONS

Pear skin processing training with the application of zero waste principles into fruit skin chip products has succeeded in providing participants with a comprehensive understanding of the potential of pear skin waste as a raw material for value-added food products. This training has also equipped participants with technical skills in the processing process, from raw material preparation and drying to packaging.

For the pear skin processing program to become chips to run more effectively and sustainably, the following suggestions can be considered:

- Product innovation development: Further research is needed to develop variations in the taste and texture of pear skin chips to make them more attractive to consumers.
- Product quality improvement: Strict quality control is needed at every stage of production to ensure that the quality of the product produced is always maintained.
- Marketing: More intensive marketing efforts are needed to introduce pear skin chip products to the wider community.
- Partnership: It is necessary to establish cooperation with various parties, such as the government, business actors, and research institutions, to support the development of this product.
- Continuous training: It is necessary to hold regular follow-up training to increase the capacity of participants in managing the pear skin chip processing business.
- Socialization: It is necessary to continuously socialize the community regarding the importance of managing waste sustainably and the benefits of pear skin chip products.

## REFERENCES

- Andre Yusuf Trisna Putra, N. K. E. (2024). Alamat: Jl Raya Rungkut Madya Gunung Anyar Surabaya. 2(1).
- Budiyanto, C. W., Yasmin, A., Fitdaushi, A. N., Rizqia, A. Q. S. Z., Safitri, A. R., Anggraeni, D. N., Farhana, K. H., Alkatiri, M. Q., Perwira, Y. Y., & Pratama, Y. A. (2022). Mengubah Sampah Organik Menjadi Eco Enzym Multifungsi: Inovasi Di Kawasan Urban. *Dedikasi: Community Service Reports*, 4(1), 31–38. <https://doi.org/10.20961/Dedikasi.V4i1.55693>
- Cahyani, D. P., Azwar, & Purnamarini, R. T. (2021). Pemberdayaan Masyarakat Sebagai Upaya Meningkatkan Pendapatan Rumah Tangga Melalui Pelatihan Kerajinan Tie Dye. *Journal Masyarakat Mandiri*, 5(6), 3203–3211. <http://journal.ummat.ac.id/index.php/jmm/article/view/5736>
- Febriani, L., & Saleha, S. (2021). Peran Industri Rumah Tangga Dalam Pemberdayaan Ekonomi Keluarga Dan Masyarakat (Studi Pada Industri Rumah Tangga Getas Dan Kemplang Di Desa Kuarau, Bangka Tengah). *Community : Pengawas Dinamika Sosial*, 7(2), 121. <https://doi.org/10.35308/Jcpds.V7i2.3798>

- I Made Sastra Wibawa, D. (2023). Sosialisasi Pencegahan Demam Berdarah Dengue ( Dbd ) Pada Rumah Masyarakat Dengan Sanitasi Lingkungan Yang Kurang Bagus Di Desa Abiansemal. 2(1), 231-235.
- I Wayan Eka Santika. (2022). Penguatan Nilai-Nilai Kearifan Lokal Bali Dalam Membentuk Profil Pelajar Pancasila. *Jurnal Pendidikan Dan Konseling*, 4, 1349-1358.
- Lestari, P., & Saifuddin, M. (2020). Implementasi Strategi Promosi Produk Dalam Proses Keputusan Pembelian Melalui Digital Marketing Saat Pandemi Covid'19. *Jurnal Manajemen Dan Inovasi (Manova)*, 3(2), 23-31. <https://doi.org/10.15642/Manova.V3i2.301>
- Maksum, T. S., Mursyidah, A., & Blongkod, F. R. (2024). Pemanfaatan Limbah Kulit Pisang Menjadi Cemilan Sehat Tinggi Serat Sebagai Solusi Zero Waste Utilizing Banana Peel Waste To Make Healthy High Fiber Snacks As A Zero Waste Solution. 7(7), 2729-2737. <https://doi.org/10.56338/Jks.V7i7.5818>
- Masruroh, F., & Suharningsih. (2017). Ekonomi Dan Bisnis Universitas Airlangga Surabaya Fa ' Izatul Masruroh. *Kajian Moral Dan Kewarganegaraan*, 05(01), 567-581.
- Ni Komang Yunika Dewi, I. W. W. (2021). Eksistensi Umkm Busana Adat Bali Akibat Dampak. 381-386.
- Ni Luh Made, A. M. P., I Made, S. W., Wirawan, I. P. A. P., I Nyoman Wika Arya, P., & Juniawan, I. M. (2024). Sosialisasi Pembuatan Eco Enzym Berbasis Sampah Organik Rumah Tangga Kepada Masyarakat Di Desa Abiansemal Dauh Yeh Cani. *Jurnal Abdi Dharma Masyarakat (Jadma)*, 5(1), 14-19. <https://doi.org/10.36733/Jadma.V5i1.7125>
- Nursetiani, A., & Safaria, S. (2024). Stp Analysis ( Segmenting , Targeting And Positioning ) Of Private Vocational Secondary Level Educational Institutions : A Study On Business And Technology High School In Bekasi. 3(6), 1293-1306.
- Patricia, V. M., & Saputri, F. N. (2020). Phytochemical Screening And Determination Of Total Phenolic And Total Flavonoid Contents Of Pear Peel Extracts. *Farmasains : Jurnal Farmasi Dan Ilmu Kesehatan*, 4(2), 33-37. <https://doi.org/10.22219/Farmasains.V4i2.10166>
- Ramanda, M. R., Wahyuningtyas, A., & Utari, N. W. A. (2024). Pengembangan Dan Pengolahan Kulit Buah Kakao Menjadi Produk Unggulan Kreatif Cookies Dan Kerupuk. *Jurnal Inovasi Hasil Pengabdian Masyarakat (Jipemas)*, 7(2), 492-503. <https://doi.org/10.33474/Jipemas.V7i2.21018>

- Suryani, M., Situmorang, M., Tandiono, S., Thaib, C. M., Jl, A., Muslim, K., Tengah, H., Helvetia, K. M., & Medan, K. (2024). Pemberian Edukasi Kepada Masyarakat Pemanfaatan Kulit Buah Pir Menjadi Sediaan Sheet Mask Yang Berkhasiat Sebagai Antioksidan Providing Education To The Community Utilizing Pear Peel To Prepare Sheet Masks Which Are Efficacious As Antioxidants Sarjana Farmasi Universitas Sari Mutiara , Indonesia. 3.
- Trisutrisno, I., & Awaliah, N. (2024). Pemanfaatan Limbah Kulit Buah Naga Menjadi Olahan Pangan Stik Kulit Buah Naga Utilization Of Dragon Fruit Skin Waste Into Processed Food Dragon Fruit Peel Stick. 8(2), 262-270.
- Yuliasuti, I. A. N., Yasa, I. N. M., & Jember, I. M. (2013). Partisipasi Masyarakat Dalam Pengelolaan Sampah Di Kabupaten Badung. E- Jurnal Ekonomi Dan Bisnis Universitas Udayana, 2, 374-393. [Http://Ojs.Unud.Ac.Id/Index.Php/Eeb/Article/View/5380](http://ojs.unud.ac.id/index.php/eeb/article/view/5380)