

Cemcem Candy as a Diversified Product from Loloh Cemcem Leaves: A Strategy to Enhance Community Income in Panglipuran Village, Bali

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Abstract.

Loloh cemcem leaves are commonly found in Panglipuran Village, Bangli Regency, Bali. These leaves serve as the primary raw material for a specialty beverage and have become a culinary icon of the tourist village. However, this well-known beverage has a limited shelf life of only one day, as the leaves are processed exclusively into drinks. These loloh cemcem leaves nevertheless have the potential to be diversified into products with a longer shelf life and higher selling value. Based on the results of community service activities, it was found feasible to develop alternative products from loloh cemcem leaves in the form of a more durable processed product, namely candy. This alternative product offers greater durability and higher market value than the traditional beverage, with the potential to increase the income of the Panglipuran community and thereby contribute to poverty alleviation. Moreover, the processing method for this diversified product is simple enough to be implemented by the Panglipuran community, and the resulting candy is more attractive to tourists as a souvenir than the original beverage.

Keywords: *Loloh Cemcem leaves; Product diversification; Panglipuran Village; Cemcem candy; Community income.*

I. INTRODUCTION

Panglipuran, one of Bali's tourist villages located in Bangli Regency, is well known as a favorite tourist destination. In addition to its culture, environment, and local wisdom, the village boasts a signature product: a traditional drink made from loloh cemcem leaves. This product has become part of the village's culinary identity and a popular souvenir among tourists (Anastasia, et al., 2024).

The loloh cemcem leaf drink is a favorite among tourists visiting the village; however, production remains limited to this single product—namely, the beverage itself (Hendriyani & Massenga, 2019; Sinarsari & Sukadana, 2023). Because the drink is not durable and lasts only one day, it cannot be taken home by tourists traveling outside Bali. Therefore, it is necessary to

promote alternative products derived from loloh cemcem leaves that are more durable and can serve as more attractive souvenirs recognized beyond Bali. Although several previous studies have demonstrated the feasibility of alternative products from loloh cemcem leaves, such as jelly and candy, these products have not yet been introduced to the Panglipuran community for continuous production, and the village therefore continues to produce only the traditional beverage.

The resulting drinks are sold at a relatively low price of IDR 5,000–7,000 per bottle, which limits income growth for the small and medium enterprises (SMEs) producing them and leaves these enterprises highly dependent on tourist visits. Therefore, efforts are needed to disseminate diversified products derived from loloh cemcem leaves to the Panglipuran community in order to generate higher income.

The cemcem or kecemcem plant (*Spondias pinnata* (L.f.) Kurz) is commonly used by the Balinese people as a traditional medicinal plant (Anastasia et al., 2024; Putra, et al., 2020; Sinarsari & Sukadana, 2023; Sintyawati & Dewi, 2018), in Indonesian, it is known as forest kedondong (kedondong hutan). This plant is reported to have several therapeutic benefits, including antimicrobial, antioxidant, and antituberculosis properties (Bekti, et al., 2022; Cahyaningrum & Sudaryat, 2021; Hidayati, et al., 2021; Hidayati, et al., 2022; Oluwatoyin & Deborah, 2019). In addition, cemcem is used as a food flavoring. In traditional medicine, the bark of the cemcem plant is used to treat dysentery, diarrhea, and vomiting, and also serves as an antituberculosis remedy. The roots are used to regulate menstruation, while the leaves are used to treat dysentery (Oluwatoyin & Deborah, 2019; Sutana, 2020). The fruit is used to treat rheumatism and laryngitis, and the leaves are used by Balinese people to prepare traditional drinks for treating diabetes, stomach aches, and urolithiasis (Bekti et al., 2022).

Several studies have examined the benefits of cemcem (Mayoni, 2024). The study Bekti et al., (2022) said that the cemcem plant has been used for generations by the people of Trunyan Village as a remedy for fever and toothache. Loloh cemcem leaves are among the raw materials most commonly used by the people of Panglipuran Village, Bali, for traditional beverages. As previously noted, these leaves—known in Indonesian as forest kedondong leaves—possess antimicrobial, antioxidant, and antituberculosis properties. Several other studies have examined additional benefits of loloh cemcem leaves, including their use as a remedy for rheumatism, a flavoring agent, and a treatment for toothache (Sugianti, et al., 2019). However, these findings have not been sufficiently disseminated to the Panglipuran community to enable further development, and as a result, local production remains limited to beverages.

Indeed, plants from certain regions often serve as key ingredients in traditional medicine. For instance, (Nataniel, 2024) studied liem liem leaves from Sulawesi, which contain antimicrobial, anti-inflammatory, and antioxidant compounds and have been shown to reduce blood glucose levels.

II. METHODS

This community service program employed a descriptive qualitative method based on observations of the Panglipuran village community in Bali, conducted from June 29 to July 1, 2026. In addition, interviews were conducted with the head of Panglipuran Village, who explained the primary processing method for loloh cemcem leaves, the constraints faced in developing loloh cemcem products, and the persistently low sales performance of these products. Based on the

findings from these observations and interviews, together with a supporting literature review, the community service team conducted a study to provide recommendations for Panglipuran village residents on developing alternative products derived from loloh cemcem leaves.

This study aims to provide insight to the residents of Panglipuran Village, particularly producers of loloh cemcem leaf drinks, encouraging them to explore alternative diversification of loloh cemcem leaf products into more durable items with higher selling value, namely candy or jelly products.

Product diversification is a key strategy for enhancing local commodities, expanding markets, and strengthening the community's economic resilience. The transformation of loloh cemcem leaves into candy is expected to provide the community with a new source of income while reinforcing the position of loloh cemcem leaves as both a cultural heritage product and a creative economy product of Panglipuran Village.

The community service activities targeted the loloh cemcem beverage business group, the Panglipuran Village Family Welfare Movement (PKK), the youth organization (Karang Taruna), the village MSME group, and the tourism awareness group (Pokdarwis). The proposed solutions to address these problems are as follows.

1. Strategies to Reduce the Community's Dependence on Loloh Cemcem Leaf Beverages and Promote Higher-Value Products

- a. Providing product diversification training.
- a. Providing production standardization training, including Good Manufacturing Practices (GMP), hygiene and sanitation, food packaging, and quality control.
- b. Strengthening branding, including logo design, premium packaging, Panglipuran cultural storytelling, halal certification, and PIRT (Home Industry Food Production) certification.
- c. Providing digital marketing training, including marketplace platforms, Instagram Business, TikTok Shop, product photography, and digital catalog creation.
- d. Forming joint business groups aimed at ensuring production continuity, strengthening access to capital, and facilitating collective marketing.

2. Community Service Implementation Stages

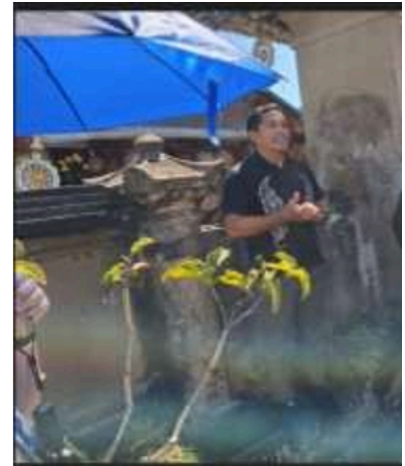
- a. Stage 1: Socialization. This stage involves reviewing the potential for diversifying cemcem leaves and identifying business opportunities in functional foods—specifically, cemcem herbal candy—which offers advantages such as portability for tourists, an extended shelf life, and potential for nationwide marketing.
- b. Stage 2: Production Training. This stage covers product formulation, processing techniques, and packaging.
- c. Stage 3: Mentoring. This stage addresses production, branding, and business legality.
- d. Stage 4: Evaluation. Indicators include the number of new products developed, improvement in participants' skills, increase in MSME turnover, and growth in customer numbers.



At Panglipuran village hall



Explanation of the production process of loloh leaf drink



The village head explains the uniqueness of the village culture

Figure 1. Interview documentation with the Head of Panglipuran Village as a key informant on the production process of traditional loloh leaf drink and the cultural uniqueness of Panglipuran Village

III. RESULT AND DISCUSSION

Based on field analysis and a review of relevant literature, it was found that the potential of the Panglipuran village community in Bali can be optimized to develop a mainstay product derived from loloh cemcem leaves—namely, cemcem candy.

Cemcem herbal candy is produced by modifying the candy- and jelly-making method developed by Hidayati et al., (2021; 2022) adapting the raw material to use cemcem leaf (*Spondias pinnata*) extract so that the process can be implemented by the community using simple household equipment. The equipment, ingredients, and procedure for making cemcem candy are described below.

1. Equipment

Basin, knife, chopping board, stainless steel pan, gas stove, cloth strainer, wooden stirrer, silicone/candy mold, kitchen scale, and OPP plastic packaging.

2. Ingredients

Table 1. Composition of ingredients used in the preparation of loloh leaf drink

Ingredient	Amount
Fresh cemcem leaves	50–60 leaves (200 g)
Water	500 ml
Granulated sugar	500 g
Brown sugar	100 g
Lime juice	2 tbsp
Ginger (optional)	20 g

3. Procedure

- Wash 200 g of cemcem leaves thoroughly under running water.
- Slice the leaves into small pieces to optimize the extraction process.

- c. Boil the leaves in 500 ml of water for approximately 20 minutes.
- d. Filter the boiled mixture through a clean cloth and collect the cemcem leaf extract.
- e. Mix the extract with granulated sugar, brown sugar, and a small amount of lime juice.
- f. Add hot water and stir continuously until the mixture thickens.
- g. Pour the mixture into a silicone mold or a simple mold lightly greased with oil.
- h. After the candy has cooled, package it using airtight OPP plastic.
- i. The product has a shelf life of 3–4 months.



Figure 2. Candy production method adapted and developed from Hidayati et al. (2021, 2022)

4. Process Flow Diagram

The flow diagram for the cemcem candy-making process is presented below.



Figure 3. Process flow diagram for the production of cemcem leaf candy

Through product diversification, the residents of Panglipuran Village will be able to overcome their dependence on a single product, as cemcem candy has a longer shelf life. In addition, the product can be made by all residents because it requires only simple household equipment, and its distinctive taste can be preserved through the addition of sugar and other natural ingredients, making it more acceptable to various consumer groups, including children. Candy diversification adds value by increasing the selling price of the raw material—cemcem leaves—which were previously used only as a low-priced beverage ingredient. Consequently, with the production of cemcem candy, the Panglipuran community will be able to sell not only raw ingredients for loloh or other traditional drinks but also processed products with greater market competitiveness. In addition, candy production equips the community with knowledge of food processing techniques, sanitation, and packaging while maintaining product quality. This increased capacity is expected to encourage the growth of new entrepreneurs based on local potential and to strengthen the sustainability of local MSMEs.

To realize this candy product diversification and ensure effective distribution that increases the income of the Panglipuran community, a robust distribution strategy is essential. Accordingly, the community requires training activities for processing this diversified product, tailored to the specific characteristics of MSMEs in the Panglipuran tourist village. Furthermore, proper packaging will enhance consumer confidence and strengthen the product's identity as a high-value souvenir from Panglipuran Village. Product distribution will then be carried out through several marketing channels, including direct sales to tourists visiting Panglipuran Village, as well as sales through retail outlets, MSME kiosks, and village-owned enterprises (BUMDes). In addition, digital marketing through platforms such as WhatsApp Business, Facebook, Instagram, TikTok, and online marketplaces is essential to ensure the product reaches consumers outside the region. Collaborative efforts involving the village government, tourism village management, PKK groups, youth organizations, and BUMDes are crucial for expanding the marketing network.

This marketing strategy is expected to increase sales volume, expand market reach, and create new sources of income for the community. Cemcem candy offers the advantage of a long shelf life, which provides flexibility in the distribution process and reduces dependence on daily sales, unlike fresh loloh cemcem. Therefore, product diversification in the form of cemcem candy represents a food innovation capable of building a more sustainable business ecosystem through enhanced production skills, strengthened MSME institutions, and the development of digital-based marketing.

IV. CONCLUSION

The community service activities conducted in Panglipuran Village, which provided insight into the diversification of cemcem leaf products into candy, represent an effective solution for increasing community income. The mainstay product—a refreshing beverage—can be complemented by candy through innovations that increase added value, extend product shelf life, expand the variety of local products, and create new, more competitive business opportunities.

The success of this product diversification needs to be supported by enhancing community capacity through training in processing, packaging, labeling, and marketing. Furthermore, product distribution through village tourism networks, BUMDes, souvenir centers, and digital marketing

channels provides broader market opportunities, thereby increasing the potential to raise community income and strengthen the local economy.

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REFERENCES

- Anastasia, N. P. S., Wismayantu, K. W. D., & Raya, N. A. J. (2024). Budaya Masyarakat Mengonsumsi Loloh Cemcem Sebagai Minuman Tradisional Di Desa Penglipuran Bali. *Binapatria*, 18(10i). <https://doi.org/https://binapatria.id/index.php/MMMMMMMS>
- Bekti, H. S., Agung, I. G., Dharmawati, A., & Habiba, N. (2022). Uji Ekstrak Daun Cemcem dalam Menghambat Pertumbuhan Bakteri *Phorphyromonas gingivalis*. *Jurnal Sains Daan Teknologi*, 11(2), 267–273. <https://doi.org/https://doi.org/10.23887/jstundiksha.v11i2.49457>
- Cahyaningrum, P. L., & Sudaryat, N. L. G. (2021). Budaya Minum Loloh Sebagai Upaya Meningkatkan Imunitas Tubuh Di Masa Pandemi Covid 19. *E-Jurnal Widya Kesehatan*, 3(2), 18–24.
- Hendriyani, I. G. A. D., & Massenga, L. M. (2019). Persepsi Wisatawan Terhadap Minuman Tradisional Bali Sebagai Signature Drink: Studi Pada Loloh CemCem Di Desa Wisata Penglipuran, Bali. *Jurnal Gastronomi*, 7(September).
- Hidayati, S., Nurainy, F., Koesoemawardani, D., & Sefriadi, M. (2021). The Making Of Herbal Squeezed Candy And The Producing Characteristics. *Jurnal Teknik Pertanian Lampung*, 10(1), 57–63.
- Hidayati, S., Tumanggor, H. R., Koesoemawardhani, D., & Nurainy, F. (2022). Utilization Of Caraginan To Make Jamu Cekok Jelly Candy. *Jurnal Ilmu Dan Teknologi Pangan*, 11(4).
- Mayoni, P. C. (2024). Rancang Model Ontologi dalam Representasi Digital Loloh Cemcem Penglipuran. *Jurnal Nasional Teknologi Informasi Dan Aplikasinya*, 3(November), 177–188. <https://doi.org/e-ISSN: 3032-1948>
- Nataniel, C. (2024). Review: Identification of the main bioactive compounds in leilem leaves (*Clerodendrum minahassae*) and their pharmacological potential. *Journal of Pharmaceutical and Sciences*, 7(4), 739–746.
- Oluwatoyin, A. E., & Deborah, O. W. (2019). Study of aqueous leaf extracts of *Spondias mombin* Linn. Anacardiaceae) in gastric ulcer models and the possible mechanisms of action. *The Journal of Phytopharmacology*, 8(5), 238–247. <https://doi.org/10.31254/phyto.2019.8506>
- Putra, I. G. B. N. P., Larasdiputra, G. D., Pratama, I. G. S., & Putra, P. (2020). Pemberdayaan Masyarakat Pada Kelompok Usaha Loloh Cemcem. *International Journal Of Community Service Learning*, 4(October), 304–313.

- Sinarsari, N. M., & Sukadana, I. K. (2023). Minuman Tradisional Loloh dan cem cem sebagai Welcome Drink Di Desa Penglipuran Bali. *Paryatāka: Jurnal Pariwisata Budaya Dan Keagamaan*, 2(1), 163–178.
- Sintyawati, N. L. A., & Dewi, M. R. (2018). Pengaruh kepemilikan manajerial, kepemilikan institusional dan leverage terhadap biaya keagenan pada perusahaan manufaktur. *E-Jurnal Manajemen Universitas Udayana*, 7(2), 933–1019.
- Sugianti, G. R., Wirawan, I. M. A., Wayan, N., & Utami, A. (2019). Microbiological Quality , Hygiene , and Sanitation of the Production Processes of a Traditional Beverage at Tourism Areas in Bali. *J UOEH*, 41(4), 353–362.
- Sutana, I. G. (2020). Manfaat Loloh Don Cemcem dalam Sistem Kesehatan Tradisional. *Jurnal Yoga Dan Kesehatan*, 3(2), 174–182. <https://doi.org/http://ejournal.ihtn.ac.id/index.php/jyk>