

Introduction of Food and Drink Using Butterfly Pea Flowers With the PKK Group of Karangmojo Ploso Village Jombang

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ABSTRACT

The butterfly pea flower is becoming and increasingly popular in Indonesia as a flower that has a positive impact can use for combine with food and drink and also for medicine. The aim of this dedication is to describe the introduction of food and drinks using butterfly pea flowers and explain the inhibiting and supporting factors during the process of introducing food and drinks using butterfly pea flowers. The dedication used a qualitative approach. The dedication was carried out in Karangmojo Village, Ploso, Jombang, there were 35 participants. Data collection uses direct interviews, observation and documentation. Data analysis uses triangulation. The results of the dedication showed that the implementation of the introduction of food and drinks using butterfly pea flowers given to the PKK group in Karangmojo Village, Ploso, Jombang went well. The material presented was related to the understanding of butterfly pea flowers, their components, benefits, opportunities for the business sector in cultivating butterfly pea flowers and demonstrations of food and butterfly pea flowers. The inhibiting factor is that human resources are still minimal in using the butterfly pea flower and there is no quality management of food and beverage production using the butterfly pea flower. The supporting factors are high curiosity and a willingness to learn more about the butterfly pea flower. Conclusion: The introduction of food and drinks using butterfly pea flowers with the PKK group in Karangmojo Ploso Jombang Village was carried out well. The material was delivered to participants without any problems. Solutions have been found for the inhibiting factors along with supporting factors.

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INTRODUCTION

So far, we have used synthetic coloring materials for processing food and drinks, even though around us there are materials that can be used as food and drink colorings that are good and do not have an effect on health. Butterfly flower (*Clitoria Ternatea*), one of the flowering plants from the legume tribe, contains anthocyanin compounds as a source of oxidants. The butterfly pea flower is becoming and increasingly popular in Indonesia as a flower that has a positive impact, both for serving in restaurants, used for health and sold in fresh and dried form (Marpaung, 2020). Butterfly pea flowers are classified as special plants in medicine because they are believed to be used to treat and strengthen the performance of the body's organs. The use of butterfly pea flowers in Malaysia is used as a coloring agent for sticky rice and as vegetables in Kerala (India) and the Philippines (Sumartini et al., 2020). *Clitoria ternatea* plant is classified in the kingdom Plantae, phylum Tracheophyta, class of Magnoliopsida and a family of Fabaceae (Jeyaraj et al., 2021). Apart from that, butterfly pea flowers can be used to add food coloring or in making cakes and as an addition to the family economy because they can be cultivated. *Clitoria ternatea* L. commonly known as butterfly pea or blue pea is a perennial leguminous herb belonging to family Fabaceae having several beneficial agricultural and medical applications, such as fodder, nitrogen-fixing crop, an eco-friendly insecticide (Gamage et al., 2021).

Butterfly pea flowers can be used as a natural coloring in food and drinks directly by placing them in hot water, cooling them and using them straight away. The benefits of butterfly pea flowers have been applied previously as a natural dye. There is *dedication* showing that butterfly pea flower extract can be used as a natural coloring in food, namely in ice lollies (Hartono et al., 2013). The potential of butterfly pea flowers which are so good for human health cannot be separated from the contents of butterfly pea flowers. Butterfly pea flowers have a high polyphenol content which has antioxidant potential which is good for human health (Nabila et al., 2022). Another explanation shows that the butterfly pea flower contains phytochemicals which have the potential to improve the immune system, antioxidant, antibacterial, anti-inflammatory, analgesic, antiparasitic, antihistamine and play a role in the nervous system (Zahara, 2022). Another explanation states that the pharmacological effects of butterfly pea flower roots are toxic, laxative (laxative), diuretic, vomiting stimulant and blood purifier. The flowers are used to clear red eyes, earache, and eliminate phlegm in chronic bronchitis (Lestari et al., 2022). From the explanation above, it can be seen how the potential of butterfly pea flowers has a very positive impact on the body, so it is highly recommended to use butterfly pea flowers in the current food and drinks that we consume.

Based on initial observations through the routine activities of the PKK group, the dedication were moved to take the initiative to provide activities that could be utilized by the community after the dedication. So far, the PKK group in Karangmojo Village, Ploso, Jombang has not known that Butterfly pea flowers can be cultivated and sold to people who need them as a color for food and drinks (made into various drinks with various flavors). Dried butterfly pea flowers can be sold to increase the family's economic value. The use of Butterfly pea flowers as food, medicinal plants, technology, and also as ornamental plants is starting to be widely cultivated.

Based on the needs and problem findings, this dedication aims to describe the introduction of food and drinks using butterfly pea flowers and explain the inhibiting and supporting factors during the process of introducing food and drinks using butterfly pea flowers. It is hoped that the results of this dedication can provide new information and insight for readers regarding butterfly pea flowers which have various positive things that can be explored and studied in dedication.

METHOD

This dedication using a qualitative approach, the type of qualitative research approach used by researchers is a case study, case studies are used and carried out when researchers want to obtain

informational understanding of a problem, event or phenomenon related to a natural, real life context (Nurahma & Hendriani, 2021). The dedication was carried out in Karangmojo Village, Ploso, Jombang, there were 35 participants. Data collection uses direct interviews, observation and documentation. Data analysis uses triangulation (combination) to check the validity of dedication findings, namely the data obtained from the dedication results is then reduced, the data is presented and then conclusions are drawn.

RESULTS AND DISCUSSION

Introduction to Food and Drinks Using Butterfly Flowers

Implementation of the introduction of food and drinks using butterfly pea flowers given to the group PKK in Karangmojo Village, Ploso, Jombang is carried out at the village office. Provision of materials and food and drink ingredients made from butterfly pea flowers are also prepared. The introduction of food and drinks using butterfly pea flowers with the PKK group in Karangmojo Village, Ploso, Jombang went well. Participants follow the agenda from start to finish. They welcomed the new knowledge and insights with enthusiasm and enthusiasm. The introduction to the butterfly pea flower explained through the presentation was delivered well.

- Explanation of Butterfly pea Flowers

The introduction of butterfly pea flowers to the PKK of Karangmojo Village, Ploso, Jombang was carried out through a presentation forum. In the explanation of the material, it explains the meaning of butterfly pea flowers (flower shape, types, and how to cultivate them). The butterfly pea flower has so many different shapes, colors, types and so on, it needs a more basic and detailed explanation to the participants. As for cultivation, you can buy seeds that are sold in shops or online that provide butterfly pea flower seeds, there are also those that provide dried butterfly pea flowers that are ready to be brewed or used. The explanation of the butterfly pea flower is that it is a blue flower, edible and can be used for medicine. This is supported by the explanation that butterfly pea flowers are flowers that are one type of creeping plant that is often found in home gardens or in forests and is usually used as an ornamental plant. Generally, this plant is used as a food ingredient or basic ingredient for making drinks (Putri & Shofi, 2019). Other literature explains that butterfly pea flowers are flowers that can be processed into raw materials for making herbal drinks and nutraceutical products because they have natural antioxidants to fight free radicals. (Yuliasari et al., 2023). Other literature explains that butterfly pea flowers are flowers that have a blue color, can be consumed, are useful for culinary purposes and have been used in traditional Asian and Middle Eastern medicine for centuries. (Putri & Baharza, 2023). The presentation of this material is a first step to provide knowledge and insight to participants regarding butterfly pea flowers before studying them in more depth.

The components in butterfly pea flowers are: various bioactive components found in butterfly pea flowers, both lipophilic and hydrophilic. Among the bioactive components found are flavonol glycosides, anthocyanins, flavones, flavonols, phenolic acids, terpenoid and alkaloid compounds, as well as cyclic peptide compounds or cyclotides. (Luthifah et al., 2022). Other literature adds that butterfly pea flowers have an antioxidant effect, phenolic compounds have been proven to be able to improve redox stress conditions in cells due to free radicals caused by cataracts, stroke, cancer, cardiovascular disease and Alzheimer's. The flavonoids contained in butterfly pea flowers (*Clitoria ternatea*) are believed to have antimicrobial activity originating from the plant's natural defense system. In general, the antimicrobial effect of butterfly pea flowers (*Clitoria ternatea*) is largely seen from its ability to form soluble extracellular proteins on bacterial cell walls and membranes. (Rizkawati & Rizkita, 2023). There are so many components in butterfly pea flowers that bring positive things to the body, so it is recommended to get used to them or at least consume butterfly pea flowers in daily

food and drinks to maintain balance and body immunity. The following is an illustration of the shape of the butterfly pea flower plant:



FIGURE 1.Butterfly flower

The next explanation is about the benefits obtained from consuming butterfly pea flowers for the body, such as: Brain health, improving learning ability, overcoming central nervous disorders, good for liver function, good for cosmetics, increasing immunity for the body. There are parts of the butterfly pea flower that have properties, including: the flower has a distinctive bluish-purple color and is generally used to treat urogenital diseases, heartburn and menstrual complaints. The leaves are used to relieve aches, antidote for animal bites and anthelmintic. The roots are used as a medicine for arthritis, fever and constipation(Purwanto et al., 2022). Other explanations show that butterfly pea flowers have the benefit of treating vision problems, treating inflammation and sore throats, treating boils and being a health drink(Ikhwan et al., 2022). There are so many benefits offered by butterfly pea flowers, so it is said that it is very good if we consume butterfly pea flowers in our daily lives to get good benefits for the body.

Further explanation regarding the benefits for use in the business sector. There are so many benefits and opportunities resulting from butterfly pea flowers which will certainly be very beneficial for its users, in the sense that it cannot only be used for health, but also to build the economy of course. Looking at seed shops in several places and online shops, they sell butterfly pea flowers in the form of seeds and some sell dried ones (consumed immediately). Cultivating butterfly pea flowers is very easy because this plant is very easy to grow in any soil and in any conditions, but with proper care, watering and management. In fact, every day new butterfly pea flowers and butterfly pea flower seeds will appear.



FIGURE 2.Dried Butterfly Flowers and Seeds

Seeing that the cultivation of butterfly pea flowers is easy and promising, many shops sell butterfly pea flowers to the public. This is supported by the opinion that the use of butterfly pea flowers is much sought after and preferred because they do not require specific care or fertilization. If fertilizer is given, you can use compost, just adjust the humidity conditions of the plants for watering(Wahibah et al., 2022). Other information states that butterfly pea flowers have a habitat that generally can grow at an altitude of between 1-1800m above sea level, can grow in various types of soil, and can live with temperatures ranging from 19-28 degrees Celsius, and most of the harvest still comes from nature and is still rarely cultivated widely(Hawari et al., 2022). This information shows a good

opportunity for people who want to cultivate butterfly pea flowers in their yard which can be used personally or sold to the public.

- **Food and Drink Demonstration from Butterfly Flowers**

After an explanation of butterfly pea flowers from an introductory perspective, the benefits of consuming them and the benefits in the business sector. There were demonstrations of several foods and drinks made from ingredients, one of which was a mixture of butterfly pea flowers. This demonstration was displayed as a form of proof that food and drinks using butterfly pea flowers as a natural coloring are very interesting to try, it doesn't change the taste of the food and drink of course, what's more, getting the benefits from the butterfly pea flower itself is really very good. When the presentation was finished, participants were given the opportunity to try the food and drinks served to provide proof that food and drinks with butterfly pea flowers were no less delicious than the original ones, did not change the taste but increased interest in enjoying them.

This is supported by the explanation that blue butterfly pea flowers are mostly used for various processed foods and drinks. This flower has no aroma so it is suitable for use as a coloring agent in various types of food and drinks, because it will not change the taste but can beautify the appearance and have a positive effect on health. (Wahibah et al., 2022). Another explanation shows that butterfly pea flowers contain blue anthocyanin, making flowers dissolved in water turn blue. The color of the flower gives a beautiful color to the processed food and makes it attractive, it does not give a taste or smell that can change the taste of the food itself. (Saputri et al., 2021). Other literature adds that butterfly pea flower extract can be used as a food coloring, but does not affect the aroma and taste of food (Padmawati et al., 2022). The following is a demonstration of food and drinks that use butterfly pea flowers:



FIGURE 3. Agenda for Introduction to Butterfly Flower Food and Drinks

A. Inhibiting and Supporting Factors

The inhibiting factor found in the introduction of food and drinks using butterfly pea flowers given to the PKK group in Karangmojo Village, Ploso, Jombang is that human resources are still minimal in utilizing butterfly pea flowers, the community is still untouched by quality management of food and drink production using butterfly pea flowers.

The solution offered is that human resources, especially the PKK group in Karangmojo Village, Ploso, Jombang, are given training regarding the use of butterfly pea flowers so that they can enlighten and provide insight and knowledge in the scientific field and the business potential that can be done. Internalizing food and beverage quality management by utilizing butterfly pea flowers so that they can be developed as a priority form for natural dyes

The supporting factor found in the introduction of food and drinks using butterfly pea flowers given to the PKK group in Karangmojo Village, Ploso, Jombang was the acceptance and support from the village and the Village PKK group in holding this agenda. High curiosity and willingness to learn more about butterfly pea flowers

CONCLUSION

Based on the results and discussion, information was obtained that the introduction of food and drinks using butterfly pea flowers with the PKK group in Karangmojo Ploso Jombang Village went well and was welcomed positively. The introduction was carried out with a presentation at the village office, material related to the understanding of butterfly pea flowers, their components, benefits, demonstrations of food and drinks with butterfly pea flowers, business sector opportunities in cultivating butterfly pea flowers. The finding of inhibiting factors is that human resources are still minimal in utilizing butterfly pea flowers and there is no quality management of food and beverage production using butterfly pea flowers. The supporting factors are high curiosity and a willingness to learn about butterfly pea flowers in more depth.

Thus, in conclusion, the introduction of food and drinks using butterfly pea flowers with the PKK group in Karangmojo Ploso Jombang Village was carried out well. The material was delivered to participants without any problems. Solutions have been found for the inhibiting factors along with supporting factors.

REFERENCES

- Gamage, G. C. V., Lim, Y. Y., & Choo, W. S. (2021). Anthocyanins From *Clitoria ternatea* Flower: Biosynthesis, Extraction, Stability, Antioxidant Activity, and Applications. *Frontiers in Plant Science*, 12(December), 1–17. <https://doi.org/10.3389/fpls.2021.792303>
- Hartono, M. A., Purwijantiningih, L. E., & Pranata, S. (2013). Pemanfaatan Ekstrak Bunga Telang (*Clitoria Ternatea* L.) Sebagai Pewarna Alami Es Lilin. *Jurnal Biologi*, 1–15.
- Hawari, Pujiasmanto, B., & Triharyanto, E. (2022). Morfologi Dan Kandungan Flavonoid Total Bunga Telang Di Berbagai Ketinggian Tempat Tumbuh Berbeda. *Jurnal Kultivasi*, 21(36), 88–96. <https://doi.org/10.24198/kultivasi.v21i1.36327>
- Ikhwan, A., Hartati, S., Hasanah, U., Lestari, M., & Pasaribu, H. (2022). Pemanfaatan Teh Bunga Telang (*Clitoria Ternatea*) sebagai Minuman Kesehatan dan Meningkatkan UMKM di Masa Pandemi Covid 19 kepada Masyarakat di Desa Simonis Kecamatan Aek Natas. *Jurnal Pendidikan Tambusai*, 6(1), 1–7.
- Jeyaraj, E. J., Lim, Y. Y., & Choo, W. S. (2021). Extraction methods of butterfly pea (*Clitoria ternatea*) flower and biological activities of its phytochemicals. *Journal of Food Science and Technology*, 58(6), 2054–2067. <https://doi.org/10.1007/s13197-020-04745-3>
- Lestari, U., Syarif, A., Farid, F., & Malinda, I. (2022). Inovasi Pemanfaatan Ekstrak Bunga Telang Menjadi Produk Serbuk Granul Instan Yang Diolah dengan Teknologi Spray Drying Untuk Meningkatkan Daya Tahan Tubuh Masyarakat. *Jurnal Karya Abdi Masyarakat Universitas Jambi*, 6(8.5.2017), 1–7.
- Luthifah, H., Fransiska, S., & Fevria, R. (2022). Uji Organoleptik Roti dengan Penambahan Ekstrak Air Bunga Telang (*Clitoria ternatea*) Sebagai Pewarna Alami. *Prosiding SEMNAS BIO UIN Syarif Hidayatullah Jakarta*, 436–442.
- Marpaung, A. M. (2020). Tinjauan manfaat bunga telang (*clitoria ternatea* l.) bagi kesehatan manusia. *Journal of Functional Food and Nutraceutical*, 1(2), 63–85. <https://doi.org/10.33555/jffn.v1i2.30>
- Nabila, F. S., Radhityaningtyas, D., Yurisna, V. C., Listyaningrum, F., & Aini, N. (2022). Potensi Bunga Telang (*Clitoria ternatea* L.) sebagai Antibakteri pada Produk Pangan. *JITIPARI (Jurnal Ilmiah Teknologi Dan Industri Pangan UNISRI)*, 7(1), 68–77. <https://doi.org/10.33061/jitipari.v7i1.5738>
- Nurahma, G. A., & Hendriani, W. (2021). Tinjauan sistematis studi kasus dalam penelitian kualitatif. *Mediapsi*, 7(2), 119–129. <https://doi.org/10.21776/ub.mps.2021.007.02.4>
- Padmawati, I. G. A., Pratiwi, I. D. P. K., & Wiadnyani, A. A. I. S. (2022). Pengaruh Penambahan Ekstrak Bunga Telang (*Clitoria ternatea* Linn) Terhadap Karakteristik Marshmallow. *Itepa: Jurnal Ilmu Dan Teknologi Pangan*, 11(1), 43–54.
- Purwanto, U. M. S., Aprilia, K., & Sulistiyani. (2022). Antioxidant Activity of Telang (*Clitoria ternatea* L.) Extract in Inhibiting Lipid Peroxidation. *Current Biochemistry*, 9(1), 26–37.
- Putri, D. U. P., & Baharza, N. S. (2023). Pengaruh Konsumsi Teh Bunga Telang (*Clitoria ternatea*) Sebagai Alternatif Antioksidan Dan Booster Imunitas Pada Masa Pandemi Covid-19. *Jurnal Ilmiah Permas: Jurnal Ilmiah Stikes Kendal*, 13(1), 109–118.
- Putri, M. P., & Shofi, M. (2019). Edukasi Manfaat dan Potensi Bunga Telang (*Clitoria Ternatea* Sebagai

- Minuman Kesehatan Pada Masyarakat Desa Datengan Kecamatan Grogol Kabupaten Kediri. *Prosiding Artikel Senias*, 162–166.
- Rizkawati, M., & Rizkita, L. D. (2023). Potensi Aktivitas Antibakterial Ekstrak Bunga Telang (*Clitoria ternatea*) Potential. *Jurnal Sains Dan Kesehatan*, 5(1), 70–77.
- Saputri, E. Y., Pratiwi, E., & Kunarto, B. (2021). Pengaruh Waktu Perendaman Ekstrak Bunga Telang (*Clitoria ternatea*) Pada Manisan Kolang – Kaling Terhadap Aktivitas Antioksidan, Antosianin, Intensitas Warna Dan Organoleptik. *Jurnal Mahasiswa, Food Technology and Agricultural Products*, 1–9.
- Sumartini, Ikrawan, Y., & Muntaha, F. M. (2020). Analisis Bunga Telang (*Clitoria ternatea*) Dengan Variasi Ph Metode Liquid Chromatograph-Tandem Mass Spectrometry (LC-MS/MS). *Pasundan Food Technology Journal*, 7(2), 70–77. <https://journal.unpas.ac.id>
- Wahibah, N. N., Zul, D., Martina, A., & ... (2022). Pemanfaatan Bunga Telang (*Clitoria ternatea* L.) sebagai Teh yang bermanfaat bagi kesehatan masyarakat di Kampung Eduwisata Alam Sungai Masjid Kota Dumai. *Unri Conference ...*, 4, 144–148.
- Yuliasari, H., Ayuningtyas, L. P., & Erminawati. (2023). Jurnal Teknologi Pangan dan Hasil Pertanian Identifikasi Senyawa Bioaktif dan Evaluasi Kapasitas Antioksidan Seduhan Simplisia Bunga Telang (*Clitoria ternatea* L.). *Jurnal Teknologi Pangan Dan Hasil Pertanian*, 18(1), 1–9.
- Zahara, M. (2022). Ulasan singkat: Deskripsi Tunga Telang (*Clitoria ternatea* L.) dan Manfaatnya Brief Review: Description of *Clitoria ternatea* L. and its Benefits. *Jurnal Pendidikan Sains Dan Biologi*, 9(2), 719–728. <https://doi.org/10.33059/jj.v9i2.6509>