

Technical Assistance for the Process of Making Liang Tea as a Healthy Drink in The PKK (Family Welfare Development) Organization of West Kalimantan Province Administrator

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ABSTRACT

Community service regarding the Technology of Liang Tea Making as a Health Drink was carried out by a Team of Lecturers from the Food Science and Technology Study Program, Faculty of Agriculture, Tanjungpura University (UNTAN) at the PKK Office. The partner of this activity is the West Kalimantan Province PKK. The problems faced by the skills and knowledge of Provincial PKK members as facilitators for members of the PKK organization at the Regency, Sub-District level which they assist in making health drinks as well as traditional Pontianak drinks that are competitive are still limited. The implementation method used is socialization in the form of counseling, training, mentoring, evaluation and monitoring. The results of the activity achieved were 80% of participants during the socialization increased their knowledge based on the results of question and answer through questionnaires, 10 training participants were able to make tea burrows correctly, 5 trainees would use tea burrows for their family's functional drinks. The continuation of this activity is expected to produce new facilitators for members of the PKK organization and initiate PKK members for product commercialization.

Keyword: Liang tea, Healthy Drink, PKK, community service

ABSTRAK

Pengabdian pada masyarakat tentang Teknologi Pembuatan Liang Teh Sebagai Minuman Kesehatan dilaksanakan oleh Tim Dosen dari Prodi Ilmu dan Teknologi Pangan Fakultas Pertanian, Universitas Tanjungpura (UNTAN) di Kantor PKK. Mitra dari kegiatan ini adalah PKK Propinsi Kalimantan Barat. Permasalahan yang dihadapi ketrampilan dan pengetahuan anggota PKK Propinsi sebagai fasilitator untuk anggota pada organisasi PKK tingkat Kabupaten, Kecamatan yang menjadi binaannya dalam membuat minuman kesehatan sekaligus minuman tradisional khas Pontianak yang berdaya saing masih terbatas. Metode pelaksanaan yang digunakan adalah sosialisasi berupa penyuluhan, pelatihan, pendampingan, evaluasi dan monitoring. Hasil kegiatan yang dicapai adalah 80% peserta pada saat sosialisasi meningkat pengetahuannya berdasarkan hasil tanya jawab melalui kuisioner, 10 peserta pelatihan mampu membuat liang teh dengan benar, 5 peserta pelatihan akan memanfaatkan liang teh untuk minuman fungsional keluarganya. Keberlanjutan kegiatan ini diharapkan menghasilkan fasilitator baru pada anggota binaan organisasi PKK dan menginisiasi anggota PKK untuk komersialisasi produk.

Keyword: Liang Teh, Minuman Kesehatan, PKK, Pengabdian Pada Masyarakat



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1. Introduction

Liang tea is a functional drink made from a decoction of several natural ingredients such as flowers, leaves, seeds, roots, and bark [1], but it does not contain the leaves of *Camellia sinensis* tea plant [2]. Liang tea is known as a traditional drink in Pontianak which is generally made from wungu leaves (*Graptophyllum pictum* Griff), Javanese grape leaves (*Vitis japonica*), gotu kola leaves (*Centella asiatica* L), mint leaves (*Mentha cordifolia*), pineapple shells leaves (*Rhoeo discolor*), and muje leaves or *Dicliptera chinensis* [3]. The mixture of spices in the beverage formulation is carried out to obtain a combination of antioxidants with higher activity than if it only consists of one ingredient [4].

Liang tea production technology continues to experience development both in terms of raw materials and manufacturing processes. According to Dewi et al. [5], to produce a golden purple liang tea rich in antioxidant, a modification of the process was carried out by dividing the ingredients into two groups, namely, the herbal ingredients group consisting of muje leaves (*Dicliptera chinensis*), pineapple shells leaves (*Tradescantia spathacea*), cat's whiskers leaves (*Orthosiphon aristatus*), aloe vera peels (*Aloe vera*), pandan leaves (*Pandanus amaryllifolius*), and the tea ingredient group consists of secang (*Caesalpinia sappan*), with the addition of local lemon juice to produce a new taste, where before adding local lemon juice, liang tea is less flavorful and tastes blander.

The partner in this mentoring activity is PKK (Family Welfare Empowerment) in West Kalimantan Province. PKK is one of the social organizations registered with the government. West Kalimantan Province PKK consists of administrators who are representatives of all districts in this province. When the team conducted a field orientation, it was discovered that the West Kalimantan Province PKK had problems in accelerating community welfare. This obstacle is the need to strengthen knowledge and technology that can initiate its members when disseminating technology to the community, namely the village PKK. This competency strengthening is urgent to accelerate the capacity building of the West Kalimantan Province PKK's human resources.

One of the activities carried out by the West Kalimantan Province PKK is increasing the competitiveness of traditional food through science and technology dissemination in collaboration with universities. This collaboration was welcomed by Tanjungpura University's lecturers regarding to the implementation of the second Tri Dharma Perguruan Tinggi, namely community service. The obstacle faced in efforts to increase the competitiveness of traditional food is the process according to standards, so the stability of its quality can be guaranteed. One of the traditional drinks in West Kalimantan is liang tea which is known for generations as a functional drink to treat heartburn, flu and a source of antioxidants.

Based on the constraints described, the knowledge and skills of human resources, especially PKK administrators in West Kalimantan Province, regarding the technology of making liang tea as a suitable healthy drink is needed to realize an increase in the competitiveness of traditional food. Therefore, this assistance is needed to increase knowledge and skills to become a district PKK trainer training at the village/ward level and become a source of commercial initiation.

2. Methods

This community service activity was carried out involving PKK members representing all districts in West Kalimantan Province is 38 people and 12 administrators, so the total is 50 participants. The method of implementation includes socialization, training, and assistance regarding the technology of liang tea production as an antioxidant drink. The stages implemented in realizing the solutions offered to overcome partner problems are the planning stage, program implementation, outreach and demonstrations, training and mentoring, evaluation and monitoring. The ingredients used to make traditional liang tea drinks are ingredients obtained from farmers and then dried. These ingredients consist of *Dicliptera chinensis* leaves, *Pandanus amaryllifolius* leaves, *Caesalpinia sappan* bark, *Aloe vera chinensis* peels, *Origanum vulgare* Wilder leaves, *Tradescantia spathacea* Sw. leaves, *Citrus amblycarpa* and *Zingiber officinale*. The tools used are cabinet dryer, stove, pan, trays, spoons, glasses and tea bags. This activity focuses on increasing the knowledge and skills of partners to increase the competitiveness of the traditional liang tea drink as a healthy drink rich in antioxidants. Program success indicators are measured objectively based on questionnaires filled out by participants.

2.1. Socialization

The socialization was carried out offline to discuss the knowledge of various spice healthy drinks in West

Kalimantan, especially those related to the ingredients for the liang tea formulation.

2.2. Demonstration, Training and Mentoring

Demonstration, training and mentoring was carried out to make competitive liang tea rich in antioxidant with local lemon flavor. Several materials were present to increase participant's knowledge about liang tea. The first material is the benefits and the process of making liang tea as a healthy drink which is sourced from a reference book entitled "Liang Tea Rich in Antioxidants Standardization of Quality, Physicochemical, and Sensory" [6]. The second material is the role of PKK in increasing the strength of the traditional liang tea drink. The final material is the standardization of the quality of liang tea based on patent IDS000005199 regarding the liang tea [5].

2.3. Evaluation and Monitoring

Evaluation and monitoring were carried out so the program can sustainably. Evaluation was carried out using questionnaires before and after the stages of socialization and training activities using questionnaires. Monitoring is carried out in the process of mentoring activities and after mentoring is carried out. The monitoring stage is to find out the obstacles in the technology transfer process by using the WA facility and if not still using a questionnaire so that the dissemination of the technology provided can have an impact on increasing the skills of the facilitator and being able to apply it to program development and for his family. The purpose of this stage is to see the progress of the program that has been implemented, find out the constraints that exist in the program implementation process, and find solutions to existing problems. The purpose of this stage is to see the progress of the program that has been implemented, find out the constraints that exist in the program implementation process, and find solutions to existing problems.

3. Results and Discussion

3.1. Evaluation and Monitoring

The socialization was carried out to discuss knowledge of healthy drinks with various West Kalimantan spices, especially those related to the ingredients of liang tea formulation. Socialization needs to establish active and interactive communication [7] in order to equalize understanding of the aims and objectives of the activities [8] so the technology transfer can be carried out optimally. Before socialization, participants were given a questionnaire to find out their level of familiarity with liang tea before this activity and their drinking habits and purposes. The results obtained from the 53 socialization participants are presented in Figure 1.

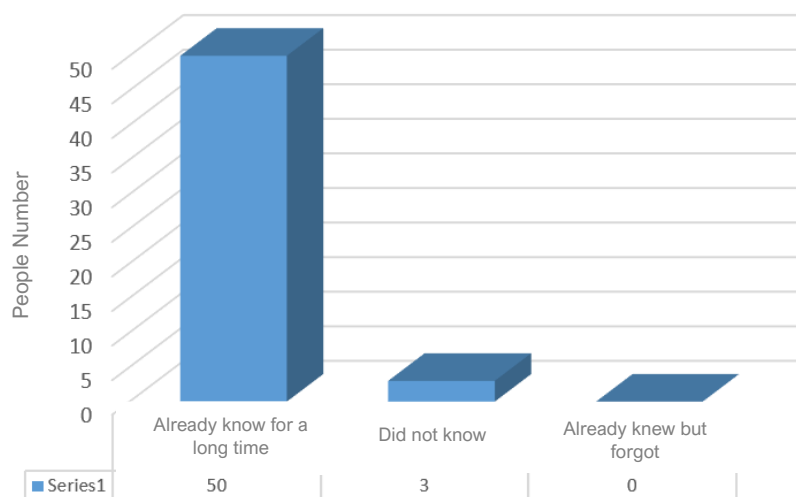


Figure 1. Distribution of participant against the introduction of Liang Tea.

According to figure 1, most of the participants had known liang tea for a long time, as many as 50 people (94.33%), while those who did not know were 3 people (5.67%), and no participants answered they already knew but forgot. Participants who have known liang tea for a long time indicated the purpose and frequency of consuming liang tea in 1 month with various distribution. The frequency percentage and the purpose of

socialization participants consuming liang tea (50 people) are presented in Table 1 and Table 2.

Table 1. Frequency of socialization participants consuming liang tea per month.

| Frequency Per Month | Percentage of Participants (People Number) |
|---------------------|--|
| Less than 4 times | 24 (12 people) |
| 5-10 times | 60 (30 people) |
| More than 10 times | 16 (8 people) |

Based on Table 1. it is known that most of the participants, as much as 84%, indicated that the frequency of consuming liang tea was less than 10 times, while only 16% of participants consumed liang tea more than 10 times in 1 month. This is presumably due to the participants lack of knowledge about the benefits and uses of these products for health [9] and influenced by the varied flavors of liang tea.

Table 2. Participant's purposes of consuming liang tea.

| Purposes of Consuming | Percentage of Participants (People Number) |
|-----------------------|--|
| Like the taste | 20 (10 people) |
| Habit | 16 (8 people) |
| Health maintenance | 60 (30 people) |
| Want to try | 4 (2 people) |

Tea is classified into several types, namely white tea, green tea, oolong tea, black tea, and herbal tea. White tea, green tea, oolong tea, and black tea are made from *Camellia sinensis* leaves. Meanwhile, herbal tea is defined as a decaffeinated drink made from a decoction of any plant other than *Camellia sinensis* leaves [10]. One of the herbal tea in Pontianak is liang tea. Liang tea is commercially available in Pontianak with a wide variety of flavors depending on the manufacturer's preference for processing and product formulation. This causes some to taste bitter to sweet so consumers purpose for consuming tea are different.

Based on Table 2, it can be seen that only 20% participants like the taste of liang tea, 16% consume it out of habit, 60% consume it to maintain health, and 4% want to try it. Generally, the purpose of people consuming herbal teas is to maintain immunity [11], so the percentage of participants consuming herbal teas to maintain health is the highest.

According to Kosasih et al. [12], herbal teas often experience problems in being accepted in society because the ingredients used come from nature with their distinctive taste and aroma. This consideration is thought to produce a picture of diverse consumer purposes so that the competitiveness of non-standardized products is low. Currently there are also obstacles for tourists who want to bring these products because there are no ready-to-go products in packaging or dry products such as tea bags. This competitiveness problem is overcome through training and mentoring with technology dissemination.

3.2. Technology Dissemination

Traditional medicine is starting to be in great demand by the public, one of which is through the consumption of functional drinks. Functional drinks are drinks that have a positive effect on health and contain antioxidants [13], one of which is herbal tea. There are many types of herbal teas with different brands and different ingredients. This is due to the aroma, antioxidant content, and its application in the health sector [14]. Herbal teas can be consumed as a practical healthy drink without disturbing your daily routine and aiming to maintain a healthy body [15]. One of the herbal teas in Pontianak is liang tea.

Consuming liang tea is associated with a reduced risk of cardiovascular disease and cancer and the health effects of tea stem from the high content of phytochemical compounds with antioxidant activity [16]. Liang tea is made by cooking the spice mixture until it boils. The process of making liang tea follows a simple patent so that the resulting product has standardized quality [17].

Dissemination is an activity to disseminate technology to target groups to obtain information so that

awareness arises, receives, and finally utilizes this information [18]. Technology dissemination begins with the introduction of materials for the formulation of liang tea, followed by demonstrations and training, and sensory testing by the participants. The technology disseminated is how to make fresh tea and make tea bags. The formulations used in making tea bags are presented in Table 3 with original, jeruk sambal and ginger flavors [19].

Table 3. Formulation of ingredients for making liang tea bags.

| Ingredients | Massa Rasio Liang Tea: Jeruk Sambal Peels/Ginger | | |
|-----------------------------------|--|--------------------|--------|
| | Original | Jeruk Sambal Peels | Ginger |
| <i>Dicliptera chinensis</i> | 1.00 | 0.80 | 0.80 |
| <i>Pandanus amaryllifolius</i> | 0.20 | 0.20 | 0.20 |
| <i>Caesalpinia sappan</i> | 0.45 | 0.45 | 0.45 |
| <i>Aloe vera chinensis</i> | 0.10 | 0.10 | 0.10 |
| <i>Origanum vulgare</i> Wilder | 0.10 | 0.10 | 0.10 |
| <i>Tradescantia spathacea</i> Sw. | 0.25 | 0.25 | 0.25 |
| <i>Citrus amblycarpa</i> | 0.00 | 0.20 | 0.00 |
| <i>Zingiber officinale</i> | 0.00 | 0.00 | 0.20 |
| Total Formulation of Liang Tea | 2.10 | 2.10 | 2.10 |

After the process of tea production training, participants were invited to do sensory testing. The results of testing consumer preferences for liang tea drinks begin with identifying the test participants' knowledge of the participants, especially the extent to which the participants know about this product which is presented in Figure 2.

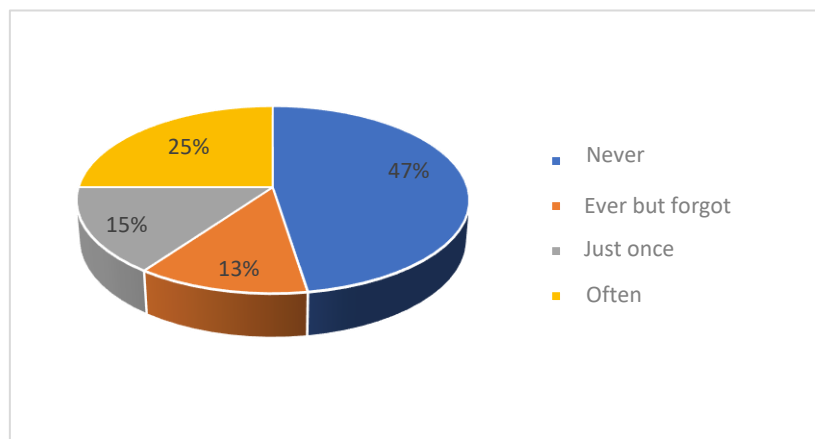


Figure 2. Percentage of participant distribution of liang teh introduction.

Based on figure 2, it shows that 47% of participants have never consumed liang tea, only 25% of participants often consume it, 15% of participants have consumed it and 13% of participants stated that they had but forgot the taste. This knowledge is necessary because Liang tea is a traditional Chinese drink, but the general public can also consume it. This condition is the basic point for developing how people who have never consumed before show different preferences.

Some of the main factors affecting the competitiveness of Pontianak tea as a herbal tea product are taste, brand and packaging. Other factors that can also affect the competitiveness of tea liang are benefits and prices [20]. Pontianak liang tea, the taste of which is not standardized and the absence of practical brands and packaging, causes consumers to be less interested in consuming it, so that most of the participants have never consumed it and some even forget the taste of the drink.

Not all of society in West Kalimantan consume liang tea and get the product from drink sellers or restaurants, but some make it at home. Based on data from the participants, it turns out that most of them have never made liang tea yet. This related to the flavors available in the market, which are only original flavors. In

addition, the stages of the manufacturing process also only use knowledge passed down from generation to generation. The percentage of liang tea for consumption is presented in Figure 3.

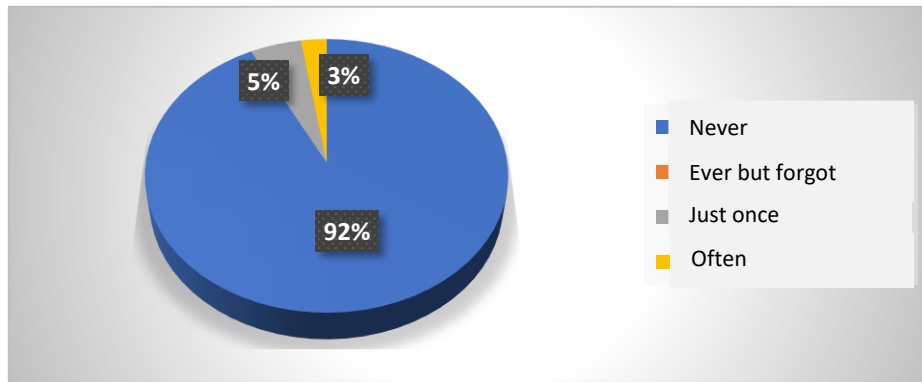


Figure 3. Procurement of Liang Tea for consumption.

Based on Figure 3, it can be concluded that most of the preference test participants only know the flavors available on the market and the sensory characteristics they remember so far. Related to this, of course, it is suspected that it will have an impact on the memory of the flavors that are generated. Therefore preference testing can help to find out whether a standardized product innovation can change consumers' taste memories. Testing preferences for drinks with various flavors are presented in Figure 4 below.

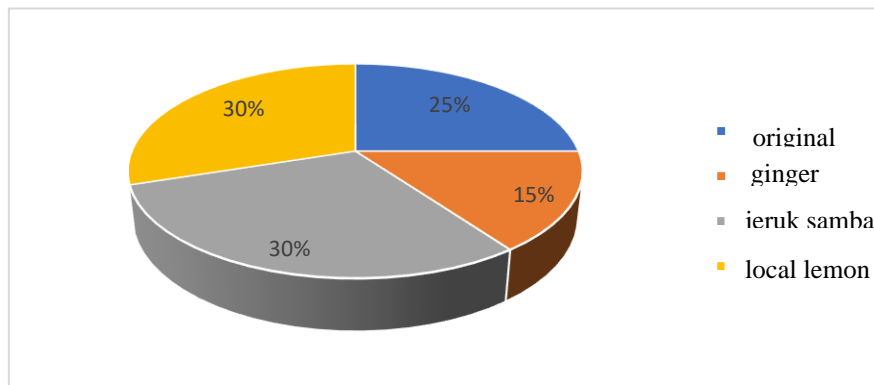


Figure 4. Sensory test results at Liang Tea flavor levels.

Based on figure 4, it can be seen that the taste chosen by consumers is between jeruk sambal and local lemon, namely 30% followed by 25% without precision, and consumers do not like the taste of ginger so only 15% of the 53 test participants chose. This is in line with Shanshan's research results [20] that the taste of herbal teas is the main factor influencing consumer preference. In general, herbal teas have a medicinal taste which is not preferred, so other ingredients are needed to make herbal teas taste better.

After and before the dissemination, an evaluation was carried out regarding the formulation knowledge and techniques for making liang tea and the results are presented in Table 4.

According to Dewi et al. [6], the process of making Pontianak liang tea includes several stages, namely: 1) sorting the herbal ingredients and tea ingredients, 2) cleaning and reducing the size of the ingredients, 3) formulation of herbal ingredients and tea ingredients followed by the extraction process, 4) preparation of color stabilizers and acidity, its application to tea ingredients, and the addition of sugar, 5) mixing of herbal ingredients and tea ingredients, 6) the process of decoction of liang tea, and 7) serving and packaging in 600 ml PET bottles.

Technology development that starts in the laboratory is often difficult downstream because market needs have not been created [21]. Highly competitive market competition is a challenge in itself in the product development process [22], so it is necessary to evaluate and monitor so that the transfer of technology from liang tea continues well.

Table 4. Formulation of ingredients for making liang tea bags.

| Information | Participant's Knowledge Before Technology Dissemination (%) | Participant's Knowledge After Technology Dissemination (%) |
|--|---|--|
| Techniques for Making Conventional Liang Tea from Fresh Herbs | 10 | 80 |
| Participants Answered Correctly About Ingredients for Making Liang Tea Rich in Antioxidants | 5 | 100 |
| Participants Know the Formulation of Liang Tea Rich in Antioxidants from Fresh Ingredients | 0 | 80 |
| Participants Answered Correctly the Technique for Making Liang Tea Bags Rich in Antioxidants | 0 | 80 |

3.3. Evaluation and Monitoring

Evaluation is carried out by giving questionnaires to participants regarding activity materials and satisfaction with the products produced and the sustainability of activity results. Questionnaires were given to all participants, then calculated in percentage form and simulated in graphical form in Figure 5.

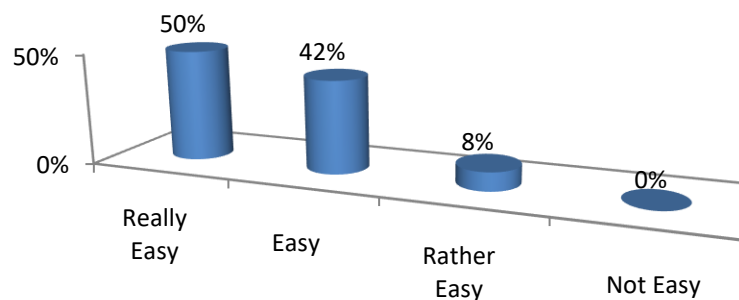


Figure 5. Percentage of overview of technology applied to partners.

According to Khusnawati and Prasetyo [23], there are various factors that can lead to the failure of a technology dissemination, namely: 1) The community's unpreparedness is marked by not being serious during the dissemination. This influenced by limited knowledge, lack of skills, limited modal, etc. 2) People's mindset that is difficult to change, which is characterized by the difficulty of people breaking away from old ways. 3) Facilitation or assistance that is not wholeheartedly marked by the absence of good communication or relationship between the facilitator and the audience. 4) Development is not sustainable, so the technology that has reached the community does not provide benefits because it cannot be used properly by the community.

The level of preference of the participants for the resulting tea bags is presented in Figure 6. The results showed that 92% of the participants liked the resulting herbal tea bags. Half of the participants really liked it, while 42% liked the Liang tea product.

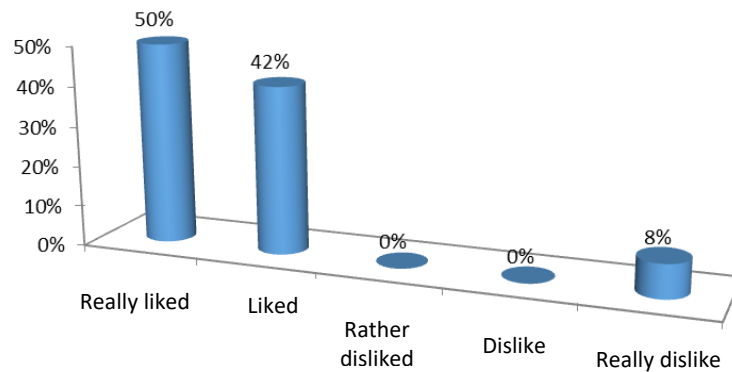


Figure 3. Percentage of participant's assessment of Liang Tea products.

Regarding the sustainability of the activity, an evaluation was carried out by asking questions about the allocation of objectives for the application of the Liang tea product. Half of the participants have applied it regularly at the family level at least once a month, 42% sold it, and 8% made it for social gathering events (Figure 7).

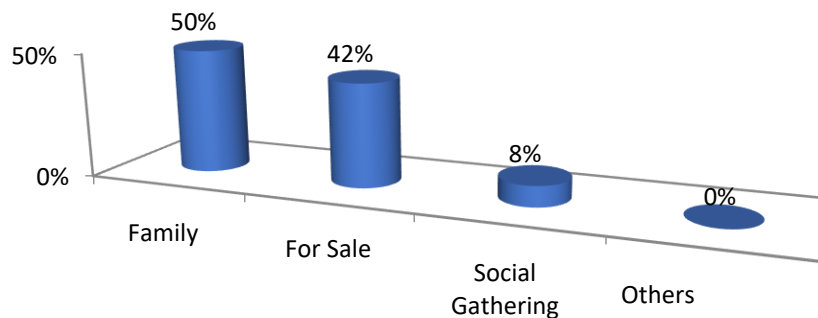


Figure 7. Percentage of application Liang Tea bag product in life.

4. Conclusions

The results of the community service activities achieved were 80% of participants during the socialization increased their knowledge based on the results of question and answer through questionnaires, 10 training participants were able to make tea burrows correctly, 5 trainees would use tea burrows for their family's functional drinks. The continuation of this activity is expected to produce new facilitators for members of the PKK organization and initiate PKK members for product commercialization.

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