

## Socialization of Used Cooking Oil Processing into Wax in Pandeyan Village, Ngemplak District, Boyolali Regency

Nur Cahyani<sup>1</sup>, Fitria Putri<sup>1</sup>, Dhea Meta<sup>1</sup>, Ghaliyah Hidastri<sup>1</sup>,  
Alfiah Nurjanah<sup>1</sup>, Lensa Premipara<sup>1</sup>

Universitas Sahid Surakarta

e-mail: <sup>1</sup>[innovitasarinur389@gmail.com](mailto:innovitasarinur389@gmail.com), <sup>2</sup>[fitriaputriaaa@gmail.com](mailto:fitriaputriaaa@gmail.com),  
<sup>3</sup>[dheaputry1705@gamil.com](mailto:dheaputry1705@gamil.com), <sup>4</sup>[ghaliyah1905@gmail.com](mailto:ghaliyah1905@gmail.com),  
<sup>5</sup>[alfiahnurjanah21@gmail.com](mailto:alfiahnurjanah21@gmail.com), <sup>6</sup>[esalensa@gmail.com](mailto:esalensa@gmail.com)

**Abstrak:** Penyebab pencemaran lingkungan salah satunya minyak jelantah. Pembuangan minyak goreng bekas seterusnya dilakukan dapat berakibat negatif bagi lingkungan dan kehidupan manusia. Kami mencoba memberikan solusi untuk mengatasi masalah ini dengan memanfaatkan minyak jelantah yang dapat diolah menjadi lilin. Pengabdian masyarakat yang berjudul Sosialisasi Pengolahan Minyak Jelantah Menjadi Lilin Di Desa Pandeyan, Kecamatan Ngemplak, Kabupaten Boyolali dilaksanakan pada hari Minggu 30 Juli 2023. Bertujuan untuk memberikan pengetahuan dan keterampilan kepada masyarakat yang dibutuhkan dalam membuat lilin. Metode yang digunakan pendekatan dengan cara pemberian informasi melalui penyuluhan terkait pengolahan minyak jelantah. Hasil dari kegiatan ini pengetahuan dan keterampilan ibu-ibu PKK Dusun Garen RT 4/2, Desa Pandeyan, Kecamatan Ngemplak, Boyolali semakin bertambah.

**Kata Kunci:** Minyak Jelantah, Lilin, dan Pencemaran

**Abstract:** One of the causes of environmental pollution is used waste cooking oil. Disposal of used cooking oil can have a negative impact on the environment and human life. We try to provide a solution to overcome this problem by utilizing used cooking oil which can be processed into candles. The community service entitled Socialization of Processing Used Cooking Oil into Candles in Pandeyan Village, Ngemplak District, Boyolali Regency was carried out on Sunday 30 July 2023. The aim is to provide knowledge and skills to the community needed in making candles. The method used is an approach by providing information through counseling regarding the processing of used cooking oil. As a result of this activity, the knowledge and skills of PKK mothers in Garen RT 4/2, Pandeyan Village, Ngemplak District, Boyolali are increasing.

**Keywords:** Waste Cooking Oil, Candle, and Pollution

### Introduction

Cooking oil is one of vegetable oils, in the form of glyceride compounds from various fatty acids present in the glycerides themselves. In food technology, oil and fat have a role because oil and fat have a high boiling point (about 200°C) which can be used to fry food so that the fried ingredients lose most of the water they contain and become dry. Used cooking oil is left over from frying more than twice, the color is

dirty, smelly, and black. Cooking oil that is used repeatedly can cause the mineral content of unsaturated fats to turn into peroxides. If waste cooking oil from households or culinary businesses is discharged into the environment, it will cause soil and water pollution. To overcome the problem, there is a need for innovation in processing used cooking oil into candles. (English: used cooking oil) is waste oil that can come from other types of cooking oil such as corn oil, vegetable oil, ghee and so on, this oil is used oil for household needs in general, can be reused for culinary purposes. however, when viewed from its chemical composition, used cooking oil contains compounds that are carcinogenic, which occur during the frying process. So it is clear that the continued use of used cooking oil can damage human health, cause cancer, and can further reduce the intelligence of the next generation. For this reason, proper handling is needed so that waste cooking oil can be beneficial and not cause harm from the aspects of human health and the environment. Another use for used cooking oil is biodiesel fuel. Used cooking oil is waste oil that can come from various types of oil fried like corn oil, vegetable oil, ghee and so on, this oil is used oil used for household needs in general. Used cooking oil is cooking oil that has been used repeatedly (4 times) and oil it has gone down in quality. Fat in food should not contain more than 50% free fatty acids (Winarsih, 2007). Total use of oil for frying purposes in the household as well as large enough fried food vendors cause the emergence of the habit of reusing cooking oil that has been used with the main reason of saving costs. Fried seller and housewives often use cooking oil repeatedly, so they can damage the quality of cooking oil and fried food and change the color of the oil to brownish and even black (LPPOM MUI, 2010). Repeated use of cooking oil will result in oil damage due to Unsaturated fats are oxidized to form peroxide compounds (Maulaningrum, 2008). Damage oil will affect the quality and nutritional value of food that is fried and can be impact on health. In addition, disposal of used cooking oil in the environment can cause environmental pollution if done continuously.



Figure 1. Example of Used Cooking Oil

The results of surveys and discussions conducted by the service team with a

group of PKK Dusun Garen RT 4/2, Pandeyan Village, Ngemplak District, Boyolali increasingly identified partner problems as follows: 1) Partner members still often use used cooking oil for cooking repeatedly , for economic reasons. 2) Partner members do not know that used cooking oil can be converted into other products that can be sold and become an alternative for additional income.



Figure 2. Education on the Dangers of Used Cooking Oil

Used cooking oil is a compound form of carcinogenic waste with high acid and peroxide numbers (Erwana, Suwartini, & Mudayana, 2018). Used cooking oil that is thrown carelessly flowing into the waterways to change the compound the water itself becomes unfit for use. Unmanaged cooking oil properly bias seep into the ground and interfere with the nutrients in the soil. As a result the land that should be cultivated the tree becomes infertile because of this. Used cooking oil is oil waste that can come from various types of oil fried as well as corn oil, oil vegetable, ghee and so on, this oil is used oil needs general household. Used cooking oil is oil fry that have been used repeatedly (4 times) use it and the oil is done down in quality. Fat in food is not may contain more than 50% fatty acids free (Winarsih, 2007). Cooking oil can be used up to 3- 4 times frying (Kapitan, 2013). Will however, if cooking oil is used repeatedly times, then the fatty acids contained will more saturated and will change color. Oil the used fry is said to have been spoiled or can be called used cooking oil and not good to be consumed (Lipoeto, 2011). Used cooking oil is a non-B-3 waste that must be handled properly appropriate to prevent environmental damage when thrown away and also at this time There is a process of recycling used cooking oil bulk cooking oil which is then sold to food entrepreneurs in particular, at a lower price than oil fresh or new fry. Though usage Recycled cooking oil and cooking oil This cooking oil is very dangerous for health Basically this household waste has considerable economic potential if properly managed. Used cooking oil can processed into soap, biodiesel fuel and also candles. Thus we are students KKN conducted a survey in desa Pandeyan regarding the problem of used cooking oil it turns out that in that area already exist trash bank program where the program is cooking oil is included in it.

Based on conditions That is the partner's priority problem mutually agreed to be addressed through activities this real work lecture (KKN) is making socialization program related to used cooking oil with the theme of the impact and utilization of oil waste. At the final aim the community service want to *Socialize processing Used Cooking Oil into Candles in Pandeyan Village, Ngemplak District*

## Method

This activity was held in Garen Hamlet RT 4/2, Pandeyan Village, Ngemplak District, Boyolali Regency, Central Java, on Sunday, July 30 2023. This community service activity took the theme of socializing the processing of used cooking oil into candles. This service activity uses an approach method by providing information through counseling regarding the processing of used cooking oil. In addition to counseling, the method used is training/practice on how to make candles. This service activity is aimed at PKK Dusun Garen RT 4/2, Pandeyan Village, Ngemplak District, Boyolali Regency, Central Java. the community service was done as follows: 1. Implementation regarding socialization and letters mail (Initial implementation is mail correspondence regarding socialization activities is addressed to the Dusun Garen 2. Information on activities verbally through RW and local RT. (Visiting the residence of head of RW and RT to notify that we are KKN students carry out activities and notify a little description of the socialization of oil waste) 3. Application for permission to the pandeyan village to use place as place for socialization (us visiting and surveying the place implementation and seek permission from the chairman of Pandeyan actually want to use the place of the village as the venue for the socialization event) 4. Inviting the member of PKK who are in the Pandeyan village (We invite socialization events directly to local housewives that there will be a socialization event related to the impact and use of oil jelantah change into candle 5. Event preparation (preparing equipment and where needed) 6. Registration (participants fill out the attendance list) 7. Introduction (Welcome to the place and thank you for providing a place 8. Submission of materials. At this stage on going presentation of the material prepared by our resource person

## Result and Discussion

This activity is aimed at equipping PKK mothers with knowledge and skills in Dusu Garen RT 4/2, Pandeyan Village, Ngemplak District, Boyolali Regency regarding processing used cooking oil into candles. It is hoped that after this service activity ends, the knowledge and skills of PKK Dusun Garen RT 4/2, Pandeyan Village will increase.



Figure 1. Education on the Dangers of Used Cooking Oil

Here are the steps needed to process wax from used cooking oil:

1. Prepare the materials and tools needed such as used cooking oil, stearin, wood charcoal, bottles, candle containers, cotton rope, and crayons
2. Put the used cooking oil into the bottle as much as 650 ml
3. Put the wood charcoal into the used cooking oil to make it clear and reduce the smell
4. Cooking oil and wood charcoal leave for 24 hours
5. After 24 hours of silence and filter
6. Pour into a 600 ml pan and heat over low heat
7. Add 300 gr of stearin
8. After all the ingredients are mixed homogeneously, add 4 crayon sticks. Then stir and turn off the stove
9. Prepare a container for wax and cotton thread
10. Put the liquid wax into the container.
11. Wait for the liquid wax to harden.

In this activity, the team provides information and training to partner members includes:

### **1) Creating jobs for Community**

The participants in the training for processing used cooking oil into candles were PKK mothers. Some of them work in factory and some of them are in their home as housewives. Housewives with large numbers can be used to support family economy. With regard to economic demands, housewives have strong encouragement to be able to help the family economy. From an economic point of view, making candles from used cooking oil can generate a fairly high income because the costs used are not too large

and the people who produce the candles can get economic value. Besides providing training in making candles from used cooking oil, service actors also provide knowledge about more attractive product packaging techniques and how to market them through the use of online stores.

## **2) Training on making candles from used cooking oil is an effort to counteract its use used cooking oil for consumption**

It is because used cooking oil is very bad for health and therefore used cooking oil can be used as an alternative material for making candles. Process of making candles Used cooking oil runs in several stages. Crude glycerin obtained from the process Mixing used cooking oil and several ingredients can be processed into candles. The applied science of hydrocarbon chemistry is one of the theories applied in processing of used cooking oil into wax.

## **3) Training in protecting the environment from all pollution.**

Used cooking oil is oil that has been used repeatedly and has a dark brown color. People generally throw away leftover oil that is no longer suitable for consumption. The impact of disposing of used cooking oil will be pollution for the oil disposal site. This will get worse when used cooking oil is disposed of together with plastic which will cause it to be difficult to decompose and has the potential to become a waste that is hazardous to the environment. Efforts to process waste cooking oil is an effort to reduce pollution caused by careless disposal. Used cooking oil that is simply thrown away without measurable processing will require environmental improvements that are difficult and expensive

## **Conclusion**

This training is a form of student dedication to the community. With the aim of providing knowledge and training in processing used cooking oil into candles. The expected results can be applied in everyday life such as ; training on making candles from used cooking oil is an effort to counteract its use used cooking oil for consumption; inviting people to care about protecting the environment from all pollution; and this training is expected to create jobs for the community. The students who took part in this activity hoped to expand the activity and involve more people.

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