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USE OF RESIDUAL OILS:A SOCIOENVIRONMENTAL PROGRAM FOR THE BENEFIT OF NEEDY COMMUNITIES IN BRAZIL

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ABSTRACT:
The final destination of vegetable oils waste from food preparation is an environmental problem that affects the general population, since both the residences, such as coffee shops and restaurants are not the proper disposal of this waste. When eliminated in the drains of pious cause blockages in pipes and sewer piping, causing pollution of the soil, of the waters of the rivers and lakes and, rendering it unfit for use. Therefore, the reuse of oils from cooking food could reduce the environmental impact caused by the emission of this residue in nature, therefore transform the waste into products of human utility, minimizing the environmental problems. In the present study were collected residual oils generated in the restaurants of Universidade Federal do Amazonas (UFAM), because they did not have a proper final destination for this residue. For this purpose, we used specific containers arranged properly in restaurants. Having as

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its main focus the environmental mobilization of communities, the product collected was intended for Associations called “Raízes da Terra” and “Santa Luzia”, which act in the neighborhood “Colônia Terra Nova”, in the city of Manaus, Amazonas, Brazil), with the processing oil for soap production.

KEYWORDS

selective collect, environmental, oils and waste fat.

RESUMO

A destinação final de óleos vegetais residuais provenientes da preparação de alimentos é um problema ambiental que atinge a população em geral, já que, tanto as residências, como lanchonetes e restaurantes não fazem o descarte adequado desse resíduo. Quando eliminado nos ralos das pias ocasionam entupimentos nos encanamentos e tubulações de esgoto, provocando a poluição do solo, das águas dos rios e lagos e, tornando-as impróprias para o uso. Portanto, o reaproveitamento dos óleos provenientes da cocção de alimentos poderia diminuir o impacto ambiental causado pela emissão desse resíduo na natureza, pois transformaria o lixo em produtos de utilidade humana, minimizando os problemas ambientais. No presente trabalho foram coletados óleos residuais gerados nos restaurantes da Universidade Federal do Amazonas (UFAM), pois os mesmos não possuíam uma destinação adequada para esse resíduo. Para esse fim, foram utilizados recipientes específicos dispostos adequadamente nos restaurantes. Tendo como foco principal a mobilização ambiental de comunidades, o produto coletado foi destinado para Associaçõesdenominadas Raízes da Terra e Santa Luzia, que atuam no bairro Colônia Terra Nova, na cidade de Manaus (no Estado do Amazonas – Brasil), com o beneficiamento do óleo para produção de sabão.

Palavras-chaves: coleta seletiva, socioambiental, óleos residuais.

INTRODUCTION

Means for trash or debris a material without commercial value and with potential for environmental degradation. Schalchand collaborators(1990), consider solid waste those from systems of water treatments, such as sludge or mud, generated in equipment and facilities for the control of pollution (ash and remainders of small and large), and also certain liquids (oil residues, waste alkali and acids) with characteristics that impede itslaunch the public sewers or in bodies of water (rivers, lakes), or requiring technical solutions in the face of best available technology.

The majority of the population, commonly, performs the disposal of waste oil in frying in sewage system coming from sink/drain. According to Freitasand collaborators (2008), one liter of oil poured improperly can contaminate one million liters of water, the quantity corresponding to the consumption of a person for 14 years. The presence of residual oils in rivers creates a barrier that hinders the entry of light and the oxygenation of the water, compromising the basis of the aquatic food chain and also contribute to the occurrence of floods. The contamination of water sources results in a problem of public health, because it raises serious hygiene problems and bad smell, besides attracting cockroaches, rats (SANTOS et al., 2009). In addition, the accumulation of residual oils in piping can cause clogs and reflux of sewage, and to unblock the pipes it is necessary the use of toxic chemicals,

generating a string harmful, increasing thecost of water and sewer services to a city. The emission of methane (CH4) in the atmosphere caused by the decomposition of cooking oil is another factor of environmental impact, in addition to being one of the main gases that cause the greenhouse effect, when added to the atmospheric air is transformed into a mixture of high explosive content and, in turn, contributes to the global warming of the Earth.

One way to avoid pollution from residual oils is make your storage in containers of type PET bottle for later reuse in the most diverse sectors (industries of polymers, paints and glue; mass of glazier; animal feed). It stands out the recycling for the manufacture of soap, in addition to currently be used as raw material for the production of biodiesel. The reuse and recycling of residual oils, aiming at the preservation of the environment, is already a reality. In Brazil there are initiatives for the recycling of residual oils, cooperatives that work by means of environmental awareness for the production of soap with the collection of waste oil for frying (CABRAL et al., 2008). Other examples are the group "Recóleo" of Belo Horizonte - MG, who works with the collection and recycling of vegetable oil. In Idaiatuba - SP, there is a plant for the production of biodiesel from cooking oil that is collected by the community itself, and the produced biodiesel used in bus fleet of the city (FREITAS et al., 2008). In Porto Alegre - RS, half of the 120 tonnes of residual oil for frying is recycled and transformed into glue and ink for industrial use. In addition, there are other applications for the oils and fats from the frying process that can be reused in obtaining an additive used in the rubber industry. The sediment present in oils which consists of food waste, water, salt, and part of the oil has been tested as food in microbial formation of organic compounds, for use in the process of composting (LEITÃO, 2009).

The communities of the city of Manaus, Amazonas, Brazil, organized in different parts of the city, have a significant potential for reception of knowledge. In Amazonas the distribution of concepts about the environment has been broadcasted by vehicles of communication, however, actions to reduce pollutants impacting need to be applied in such a way as to reduce the effects caused by these. As already mentioned residual oils cause apolluter effect quite significant and the reduction of the impact of this waste requires the search of an actuation by improvements in the education of the population. In accordance with the legal setting, the city of Manaus has two bills pending approval in the Legislative Assembly, which have the purpose in common, adjust the allocation, recollection and the reutilization of oil or residual fat used for frying food. Visualizing the efforts of governmental plans exist within the city of Manaus in relation to reduction of pollutants, it is understandable that wherever these performances do not reach or have not yet arrived, the people are still degrading the environment and many without even knowing. Understanding that punctual actions serve as a parameter for large projects and many are even the beginning of changes in daily life of communities affected by projects of Universidade Federal do Amazonas (UFAM) was held this program for environmental action in order to reduce the effects caused by this pollutant.

DEVELOPMENT

Was carried a work of hallmark socioenvironmental, that was divided into two stages, the first was a collection of residual oils, in the UFAM were enrolled the restaurants for collection of frying oil and distributed newsletters regarding the allocation of frying oil for recycling, as well as, the environmental issues involved, was then developed a logistics for collection of residual oils of university restaurants, this material did not have any type of processing. Then the collected material was intended

for the production of soap. This step was carried out in partnership with the association of recyclers "Raízes da Terra" and "Santa Luzia" present in district "ColôniaTerra Nova", North Area of the city of Manaus, who already work with the artisanal production of soap, small-scale artisanal and, since the year 2008, which brought to the activity, the production of cleaning products and cosmetics. In principle, the raw material used by the communities for the manufacture of soap was the tallow marketed in the neighborhood, only after a few months, she was replaced by residual oils, being that the community of the "ColôniaTerra Nova" was the protagonist in the collection of this residue, obtaining the participation of a group of eight people. Basically, the collection occurs in neighborhoods of "Terra Nova" (I, II and III), "Novo Israel", "Cidadede Deus" and "SantaEtelvina".

In the second moment, presented educational lectures environmental and public health on the reuse of residual oils, with the purpose of raising awareness and organize the target audience for the question of the correct availability of waste, involving all participants in the development of ethical attitude, citizen and responsible before the environmental issues, were also applied courses on the manufacture of soap from residual oil for frying, as well as the care that should be adopted during the handling of conductors in the production of soap.

RESULTS AND DISCUSSION

The project provided great participation of the university community (especially the restaurants) and Associations of "Raízes da Terra" and "Santa Luzia" that have benefited from the receipt of residual oils for soap production. In addition, the project has made some containers appropriately labeled with the logo of the project to the communities, thus promoting new collection points in restaurants that generate residual oils, as well as by encouraging the participation of these suppliers with a stamp of environmental responsibility. The degree of acceptability of project actions was very good, because within the university or even in communities had not yet projects aimed at the collection of residual oils and the predetermined goals were achieved.

In the four months of implementation of the project, eight community of the association Raizes da Terra", six of the community "Santa Luzia" and six representatives of the restaurants in the UFAM participated in the project. Had the following profile: the age ranged between 18 and 40 years, 16 were female and 4 were male , education in general was high school and few with higher education course, all showed great interest in participation.

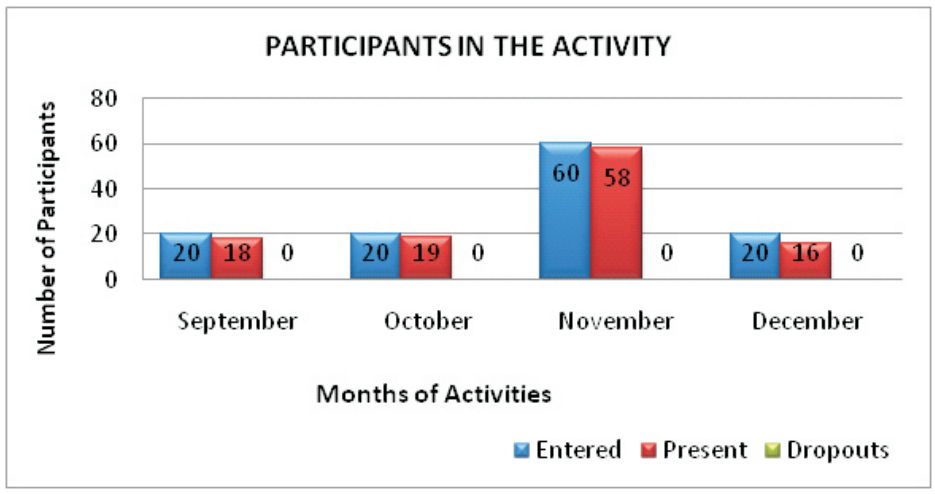

Figure 1. Number of community who participated, each month, of the activity.

Started a logistics of collection of residual oils within the campus of UFAM, where were available containers for the storage and were distributed folders of awareness to students and owners of restaurants; also there was a partnership between the project Ecoleta and the campus Hall UFAM to assist in the collection with the transport of residual oils for the final destination in the Associations.

In the period of three months (October to December 2010) were collected approximately 300 liters of residual oils (Figure 1) and transported to the communities accredited for its processing in the production of soap.

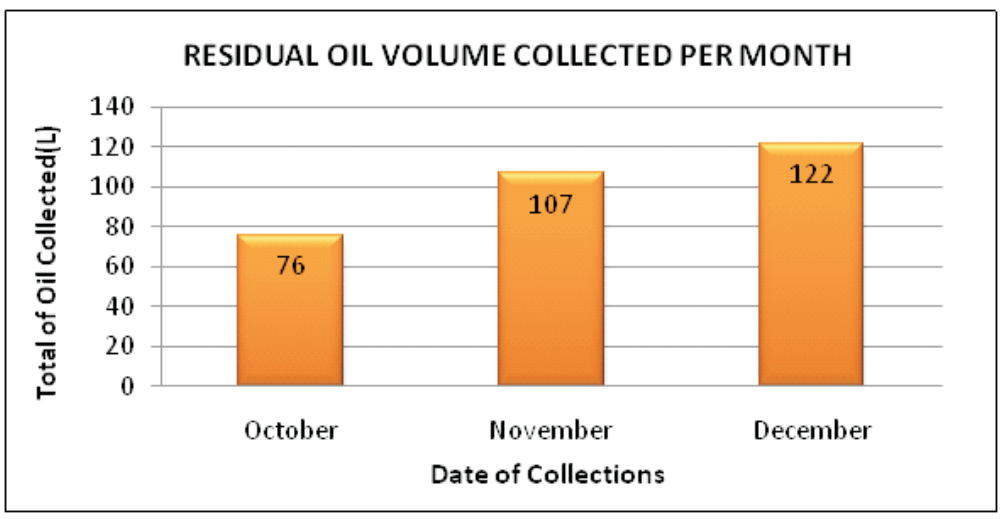

Figure 2. Volume of residual oil collected in restaurants of the UFAM.

The members of the project participated in the I Shows Institutional Teaching, Research and Extension - MIEPEX, performed by Universidade Federal do Amazonas (UFAM), offering a workshop, which had 35 participants and had as its goal the production of soap craft. In the same event was also showing a banner explaining the project actions in university community. Finally, the evaluation was positive, because there was great interest of the participants in allocation of residual oils in recycling for

the manufacture of soap.

Figure 3. Workshop for the production of soap.

FINAL CONSIDERATIONS

The main difficulty was the lack of knowledge of the university community with respect to the subject matter waste/garbage and the modes of discard. After the dissemination of the project, the UFAM comes engaging timidly with respect to the selective collection of residual oils, being that the majority of people who go there do not know that the same serves as raw material for the production of soap.

These initiatives have received dozens of low-income families who need to supplement their incomes and improve their life prospects. Thus, the present work has provided a suitable destination to this raw material, as well as strengthen the activities developed by the community, by extending its purchasing power and promoting environmental awareness both in the sphere of the university and the community. Programs of selective collection of oils and waste fat, with imprint socioenvironmental need to be encouraged in restaurants university and in the community in general, because they represent an alternative to the acquisition of income for low-income communities, as well as to reduce the environmental impact caused by improper disposal of oils for frying.

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