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MASK FOR MOISTURIZING SKIN AND BODY MADE FROM COLD-PRESSED PASTE OF PEANUTS (*Arachis hypogaea L.)*

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Abstract. There are food and plant wastes that cause environmental pollution in many countries around the world. Waste materials are one of the most unconscious uses. With the rapid increase in production, consumption and insensitive communities, industrialization and increasing population cause an intense increase in waste. In order to ensure environmental order and balance, waste must be evaluated and reused in recycling facilities. Peanut (Arachis hypogaea L.) is one of the important oilseed plants and is also considered a protein source in many countries. According to current scientific reports it is known that peanuts have many biological activities such as anti-cancer, antioxidant and anti-inflammatory. Peanut pulp can be used as a raw material source in the production of cellulose fiber products and it can be used in food products, agricultural activities, industry and cosmetics. It is especially common in the recycling field to use it as mulch for plant roots, as natural fertilizer and as chipboard in the field of furniture. In our study, cold-pressed peanut pulp was transformed into products and products with high added value with enriched formulations.

Keywords: *Peanut pulp, recycling, skin mask, cosmetics.*

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1. Introduction

One of the major oilseed plants and a source of protein in many nations is the peanut (*Arachis hypogaea L.)*. Current scientific publications state that peanuts are known to have a wide range of biological actions, including anti-inflammatory (Limmongkon *et al*., 2019), antioxidant (Hammad *et al*., 2023) and anti-cancer (Hammad *et al*., 2023; Mahatma *et al.*, 2016). Nut oils are also utilized in cooking, just like other oils. Fascinatingly, related oils are utilized in the manufacturing of surfactants, margarine, cosmetics and medications. In terms of its chemical makeup, peanut oil is naturally low in saturated fat, cholesterol and trans fat. The oil content of peanut seeds ranges from 50.45 to 52.12 g/100 g dry weight (Zahran *et al*., 2019). A quick search of the database using the term “Arachis hypogaea” turned up 15,953 papers. We can infer from the large number of articles how significant the relevant plant is. It's also evident that the majority of these papers were written in the biochemistry and health fields. Research on cosmetics is essentially nonexistent (Rodas *et al*., 2017; Karra *et al*., 2013). One of the most

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significant crops in the world for providing protein and oil is peanuts. It is astonishing, however, how many processing by products made from peanuts contain protein, fiber and polyphenolics (Limmongkon *et al*., 2019).

2. Materials and methods

The peanut (*Arachis hypogaea L.)* plant's cold-pressed pulp was used to make a moisturizing skin and body mask for this study, taking into account my field writing shortcomings and the pertinent literature. The Iğdır University Agricultural Application and Research Center (TUAM) grew peanut (*Arachis hypogaea L.)* plants, which were harvested and sent to the Iğdır University Research Laboratory Application and Research Center (ALUM) for shell separation. After being taken out of their shells, the peanuts were dried for around five hours at 60°C.

After the peanuts were brought to the appropriate moisture content, the Cold Press Oil machine's oil was extracted. Using the extracted oil samples, various research were carried out on cosmetic products. Making a "Moisturizing skin and body mask" was one of these. Following GC-MS analysis, the extracted cold-pressed oil and pulp will be combined to create various products. It was found that the relevant plant's oil components include fatty acids like g-linolenic acid (n-6) (1.22%), heneicosanoic acid (1.95%) and cis-13,16-docasadienoic acid (3.26%). The GC-MS results show that the plant's oil components are palmitic acid (8.72%), stearic acid (2.08%), oleic acid (n-9) (49.82%) and linoleic acid (n-6) (31.78%).

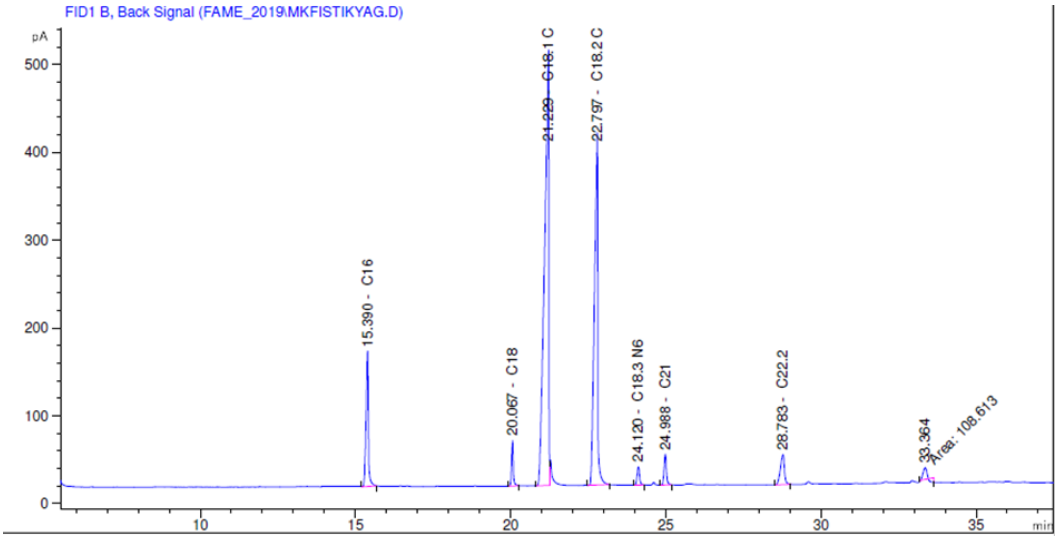

Figure 1. Fatty Acids Composition

In addition, HPLC analysis was performed to determine the phenolic compounds of peanut pulp from which oil was extracted. It was determined that the relevant extracts were rich in flavonoids and phenolic acids. According to these findings peanut pulp has also been evaluated as a nourishing skin mask (Glasser *et al.,* 1973; Khalilov *et al.,* 2011; Maleki *et al.,* 2021). However, the creams and similar products to be produced need to be researched in more detail. The increasing demand for animal proteins (dairy and meat) worldwide has encouraged the search for new protein sources. Peanut proteins represent an interesting alternative due to their high nutritional value, functional properties and low cost. Animal protein is critically needed in many developing countries because animal

protein is more expensive and beyond the reach of many people in developing countries. The abundant proteins of peanuts are a cheap protein source and can meet the needs of many people. Some of the peanut by-products/waste materials can be used in the food processing industry (Zhao *et al*., 2012; Nasibova, 2019).

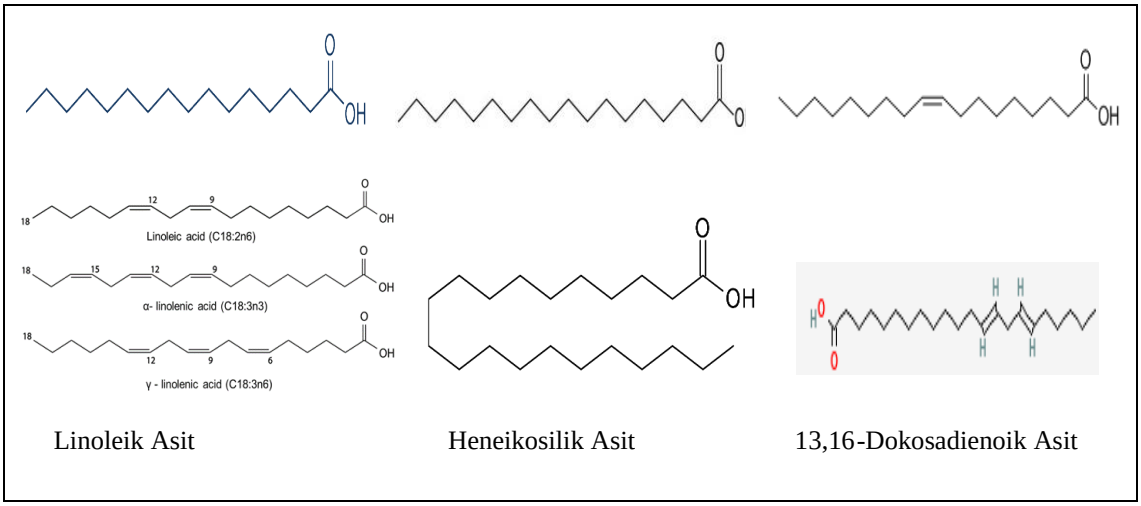

Figure 2. Shapes of Fatty Acids

3. Result and discussion

Production of Moisturizing Skin and Body Mask from Cold Pressed Pulp

After being gathered and transported to the Iğdır University Research Laboratory Application and Research Center (ALUM), peanut (Arachis Hypogaea L.) plants cultivated at the Iğdır University Agricultural Application and Research Center (TUAM) were stripped of their shells. After being taken out of their shells, the peanuts were dried for around five hours at 60℃. According to various research fields, peanuts were used to extract cold-pressed oil. After the peanuts were brought to the appropriate moisture content, the Cold Press Oil machine's oil was extracted. Using the extracted oil samples, various research were carried out on cosmetic products. Making a "Moisturizing skin and body mask" was one of these. This study has been conducted using a unique recipe. Following the establishment of a hygienic environment, the manufacturing of products began.

	**Tuam groundnut field**
	**Peanut harvest**

	**Peanut drying process**
	**The process of removing the shells**
	**Cold pressing process**
	**Cold pressed peanut oil**
	**Cold pressed peanut pulp**

Figure 3. Peanut oil and pulp production scheme

4. Conclusion

The coffee machine-ground peanut pulp is weighed and put into a beaker for the mask material production steps. Kaolin is then added and blended. After then, water is added and mixing is resumed. correspondingly, more products are added. After resting, the product is prepared for use (Nasibova, 2022; Mammadova *et al.*, 2022).

There are no commercial by-products in the food, feed, pharmaceutical, chemical, or cosmetic industries, despite prior research on the functional elements and qualities of

peanut cakes, hulls, shells and vines (Chang *et al*., 2006; Nasibova, 2020). It appears that there is still a weak state of knowledge in the studied topic. We can see from this debate that certain information comes from the fields of materials science and food science. Peanut industry byproducts can be processed using several techniques for separation and purification studies. Naturally derived components from both plants and animals are being used into cosmetic product formulations more often in order to satisfy customer preferences (Bruusgaard *et al*., 2020; Suchoszek-Łukaniuk *et al*., 2011).

Table 1. Moisturizing skin and body mask production recipe

S/N	Raw material used	Amounts(gr)
1	Peanut Pulp (Grounded as Flour)	30.00
2	Sweet Apricot Kernel Oil	5.00
3	Peanut Oil	8.00
4	Kaolin	10.00
5	Deionized Water	40.00
6	Polyvinyl Alcohol(PVA)	4.00
7	Glycerine	3.00

References

Bruusgaard-Mouritsen, M.A., Johansen, J.D., Zachariae, C., Kirkeby, C.S. & Garvey, L.H. (2020). Natural ingredients in cosmetic products—A suggestion for a screening series for skin allergy. *Contact Dermatitis, 83*(4), 251-270.

Chang, J.C., Lai, Y.H., Djoko, B., Wu, P.L., Liu, C.D., Liu, Y.W. & Chiou, R.Y.Y. (2006). Biosynthesis enhancement and antioxidant and anti-inflammatory activities of peanut (Arachis hypogaea L.) arachidin-1, arachidin-3 and isopentadienylresveratrol. *Journal of Agricultural and Food Chemistry, 54*(26), 10281-10287.

Glasser, W.G., Slupski, R.H. & Clark, J.P. (1973). Pulp-and paper-making potential of peanut hull waste in blends with softwood pulp. *Wood and Fiber Science*, 98-104.

Hammad, K.S.M., El-Roby, A.M. & Galal, S.M. (2023). Antioxidant and anticancer activities of peanut (Arachis hypogaea L.) skin ultrasound extract. *Grasas y Aceites, 74*(3), e517-e517.

Karra, G., Nadenla, R., Kiran, R.S., Srilatha, K., Mamatha, P. & Rao, V.U. (2013). An overview on Arachis hypogaea plant. *International Journal of Pharmaceutical Sciences and Research (IJPSR), 4*(12), 4508-4518.

Khalilov, R.I., Nasibova, A.N. & Gasimov, R.J. (2011). Magnetic nanoparticles in plants: EPR researchers. *News of Baku University*, 4, 55-61.

Limmongkon, A., Pankam, J., Somboon, T., Wongshaya, P. & Nopprang, P. (2019). Evaluation of the DNA damage protective activity of the germinated peanut (Arachis hypogaea) in relation to antioxidant and anti-inflammatory activity. *LWT*, 101, 259-268.

Mah**a**tma, M.K., Thawait, L.K., Bishi, S.K., Khatediya, N., Rathnakumar, A.L., Lalwani, H.B. & Misra, J.B. (2016). Nutritional composition and antioxidant activity of Spanish and Virginia groundnuts (Arachis hypogaea L.): A comparative study. *Journal of Food Science and Technology*, 53, 2279-2286.

Maleki Dizaj, S., Eftekhari, A., Mammadova, S., Ahmadian, E., Ardalan, M., Davaran, S. & Mostafavi, E. (2021). Nanomaterials for chronic kidney disease detection. *Applied Sciences, 11*(20), 9656.

Mammadova, Sh., Nasibova, A., Khalilov, R., Mehraliyeva, S., Valiyeva, M., Gojayev, A., Zhdanov, R. & Efterkhari A. (2022). Nanomaterials application in air pollution remediation. *Eurasian Chemical Communications, 4*(2), 160-166.

Nasibova, A.N. (2020). Formation of magnetic properties in biological systems under stress factors. *Journal of Radiation Researches, 7*(1), 5-10.

Nasibova, A.N. (2022). UV-B radiation effects on electron-transport reactions in biomaterials. *Advances in Biology & Earth Sciences, 7*(1), 13-18.

Nasibova, A. (2019). The use of EPR signals of snails as bioindicative parameters in the study of environmental pollution. *Advances in Biology & Earth Sciences, 4*(3), 196-205.

Rodas, M.P.C., Cruz, S.M. (2017). Characterization of seed oil from Arachis hypogaea cultivated in Guatemala for applications in lip gloss and skin cream. *International Journal of Phytocosmetics and Natural Ingredients, 4*(1), 6-6.

Suchoszek-Łukaniuk, K., Jaromin, A., Korycińska, M. & Kozubek, A. (2011). Health benefits of peanut (Arachis hypogaea L.) seeds and peanut oil consumption. In *Nuts and seeds in health and disease prevention*, 873-880.

Zahran, H.A., Tawfeuk, H.Z. (2019). Physicochemical properties of new peanut (Arachis hypogaea L.) varieties. *OCL*, 26, 19.

Zhao, X., Chen, J. & Du, F. (2012). Potential use of peanut by-products in food processing: A review. *Journal of Food Science and Technology*, 49, 521-529.