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Creative Economy Education Towards Food Security in Jungsari Community

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ABSTRACT

Jungsari Village is located in a mountain valley and is one of the villages in the Karanganyar district. The distance to the nearest city is about 5 kilometers. The majority of the Jungsari community's members are farmers and housewives. Housewives must be creative with an activity that will benefit the family's economy. The community service aimed to teach the Jungsari community how to make liquid hand soap and food stick out of cassava, which is abundant in their surroundings. Cassava is a long, tuberous root of a tropical tree that is an essential ingredient in the diet of tropical countries. Using innovative technology, the village community learned how to make hand soap and processed cassava products and marketed them online to increase family income.

KEYWORDS
creative economy;
Hand soap;
Processed cassava

1. Introduction

The economic crisis is the thing that most Indonesians fear, especially during the current pandemic [1]. COVID-19 greatly affects the wheels of the national economy, which has hit the family economy [2]. The family, as the spearhead of survival, is the critical weapon for the existence of life [3]. The period of COVID-19 pandemic, which is uncertain when it will end, has a very significant impact [4]. Several researchers from the economic field have been researching to overcome economic problems during Covid [5]. The existence of government policies regarding the Treatment of Community Activity Restrictions (PPKM) in several regions greatly affects the production, distribution, and consumption of the community [6]. Reducing physical contact and doing all forms of work from home (WFH) will reap various kinds of polemics [7], [8]. The polemic of nutritional problems as a survival supplement during a pandemic has become a serious concern [9]. The family is a place to create conditions for achieving quality nutrition and food security [10].

Food security has two important keywords, the availability of sufficient and equitable food and the population's access to food, both physically and economically. Food security is the condition of fulfilling food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable, and affordable and does not conflict with religion, belief, and culture of the community, to be able to live healthy, active, and productive in a sustainable manner. Several researchers have researched food storage for food security during COVID-19 pandemic. Choque-Quispe researched storage conditions and adsorption thermodynamic properties of purple corn [11]. Badaras's strategy for feedstock is valorizing local plant-based materials into high-value feedstocks for piglets [12]. Dee used a cross-border delivery model for the viability of viral pathogens in animal feed ingredients [13]. Buitimea-Canta used polyglycerol and propylene glycol ester structures during the storage of the texture and rheological properties of soybean oil organogels [14]. Byun used agar and casein for the texture properties of Garaetteok stored frozen and supplemented [15]. The effect of long-term frozen storage on the meat quality (Longissimus thoracis et lumborum) of male deer (Careolus capreolus L.) was studied by Daszkiewicz [16]. Sokoowicz investigated the effect of storage time on several characteristics of egg quality and composition in different housing systems [17]. The effect of short-term storage temperature on the major headspace volatile compounds observed in Canadian faba flour was investigated by Akkad [18]. The bioavailability properties of rapidly cooked and enhanced iron

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from Manteca yellow beans (Phaseolus vulgaris L.) were examined by Wiesinger [19]. Jahns studied the history and future of dietary guidance in America [20].

Agarwal studied the effect of nitrogen gas flushing on seasoning stability, volatile compounds, and the sensory perception of cheese and onion potato chips [21]. Vasylyshyna treated sour cherries (Prunus cerasus L.) with chitosan solutions before storage to keep their quality [22]. Zhang dissected the SlFSR gene, which controls fruit shelf life in tomatoes [23]. Ghufran examined the potential of water pumpkin flour (Lagenaria siceraria) as a fat mimetic in biscuits with increased physicochemical and nutritional properties and anti-diabetic properties [24]. Morsy studied the effect of anthocyanin-colored microencapsulation on the survival rate of Lactobacillus rhamnosus GG, color stability, and sensory parameters in the Strawberry Nectar Model [25]. A review of the storage quality of fermented aquatic foods based on heat treatment and water retention technology was investigated by Isola [26]. Islam probed the level of ripeness of avocados using electrical impedance spectroscopy and support vector machines [27]. Serra discovered that the position of the canopy attachment affects the metabolism and constituents of European pear skins [28]. Liu investigated the chemical properties of vacuum-fried Pleurotus eryngii as well as the characterization of the brown pigment [29]. Dietary diversity of women during the agriculture season in kapchorwa district, Uganda is the finding from Jordan's Cohort Study [30].

Wu examined the distribution of the related beetles Sitophilus oryzae and S. zeamais (Coleoptera: Curculionidae) in China's grain reserves [31]. The effect of antimicrobial edible coating and modified atmosphere packaging on the microbiological quality of cold-stored hake (Merluccius merluccius) fillet was investigated by Carrión-Granda [32]. Autoclaving on the formation of resistant starch in two varieties of Nigerian cassava (Manihot esculenta) was studied by Abioye [33]. Alkuraieef found that the extraction process and storage time affect the quality attributes of pomegranate juice from two local pomegranate varieties [34]. Keshavarz researched Lactobacillus acidophilus inoculation effect on nitrite and nitrate levels in yogurt containing spinach during cooling for 21 days [35]. Alsuhaibani discovered that Low Calorie Pumpkin Jam Fortified with Soy has an impact on diabetic rats [36]. Sun investigated the effect of preprocessing temperature and storage time on the physicochemical properties of winter melon juice [37]. Korus studied that pre-treatment and drying methods affected mineral content, group B vitamins, and tocopherols in kale (Brassica oleracea L. var. acephala) leaves [38]. Li analyzed the effect of storage temperature on moisture migration and beef microstructure [39]. B. R. Aguilar Uscanga examined the effect of applying cold plasma energy on the inactivation of damage to microorganisms, proteins, and lipids in Adobera cheese [40].

Kahramanolu studied the effects of fludioxonil, propolis, and black seed oil on the postharvest quality of "wonderful" pomegranates [41]. Eshghi measured changes in nutrients, antioxidants, and phenolic compounds in grape's postharvest storage life using Polysaccharide-based coatings [42]. Khalid proposed electrolyzed water as a green cleaner [43]. Misra reviewed emerging coating technologies and materials for probiotic improvement in food products [44]. Muhammad reviewed Evaluating Students' Nutrition Knowledge on Food Safety in Indonesia [45]. Iriondo-DeHond studied food by-products as sustainable ingredients for innovative and healthy dairy products [46]. Food safety knowledge and practices among Saudi mothers were investigated by Ayaz [47]. Food storage facilitates professional religious specialization in Watts' hunter-gatherer societies [48]. In a pre-clinical experimental study focusing on the fatty acid profile, Bomfim examined breast milk enriched with breast milk lyophilizate to feed very low birth weight, premature infants [49]. Steinka investigated the identification and behavioral assessment of methicillin-resistant staphylococci in cheese [50]. It is according to the Republic of Indonesia Government Regulation No. 17 of 2015 on Food Security and Nutrition. It is critical to understand and strive for because the family is the foundation of all family members' lives, especially in meeting basic needs such as nutritious food, education, and health.

Jungsari hamlet, Kadipiro Village is geographically located in a mountainous area with abundant natural resources. This crop's potential necessitates a light touch in terms of processing innovation and product diversification. The PKK Jungsari has approximately 60 members, the majority of whom are farmers. PKK is an abbreviation for Family Welfare Empowerment, a social organization that empowers women to participate in Indonesia's development. Figure 1 depicts the occupation of PKK Jungsari members based on population data from Kadipiro Village.

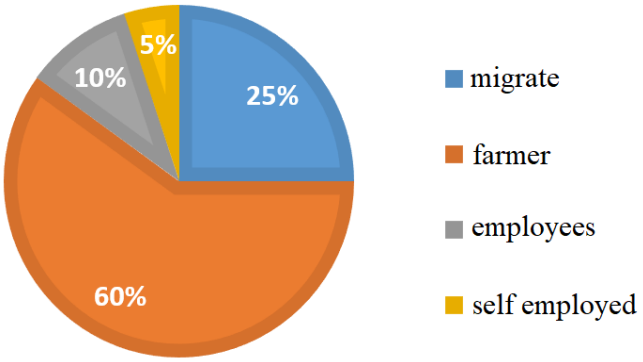

Fig. 1.PKK Jungsari member's occupation

The majority of PKK Jungsari members, approximately 60%, are farmers. In addition, the PKK members are 5% employees, 10% entrepreneurs, and 25% migrants. Crop yields play a significant role in this. PKK members currently earn around Rp. 60,000 a day. That income can be earned unless they fail to produce satisfactory yields or if crops fail. They grow various crops, including cassava, sweet potatoes, potatoes, vegetables, and fruits. Most of the harvest is sold in its raw state. Because of declining market demand, they sell it at a relatively low price. Cassava and sweet potato are two examples. Some Jungsari PKK members sell cassava and sweet potatoes in their raw state rather than processed products for about Rp. 1,800.00/kg for cassava and Rp. 5,600.00/kg for sweet potatoes. For processed cassava and sweet potatoes, such as gethuk, a sweety soft cake, the selling price is Rp. 15,000 and Rp. 18,000 per pack from 1 kg cassava and 1 kg sweet potato, respectively. This price yields a higher profit for PKK Jungasri members. According to a survey by the community service team members, the community of PKK Jungsari has not heard of the marketable innovation of processed cassava and sweet potatoes. The diversification of processed cassava and sweet potatoes is still limited, and the tool technology is outdated. Figure 2 illustrates part of the corner of Dusun Jungsari, where the PKK office is located in the same building as other village offices.

Fig. 2. PKK Jungsari office

When the harvest and planting seasons have passed, most PKK Jungsari members have much free time. Additional skills are needed to support increasing family income aside from agricultural products. They can utilize the potential of natural resources to improve skills, thereby increasing family income. One of them is to create household products relevant to COVID-19 prevention. According to the initial survey conducted by the proposer, PKK Jungsari members were unaware of this. It is interesting to investigate and exploit the potential of natural and human resources in a positive and controlled manner. Cassava plants, which contain active compounds in the prevention of COVID-19, can be processed further to make a useful product and have economic value.

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2. Method

The following are the steps for implementing community service programs through a food independence and security program:

a. The first stage is a survey and situation analysis study of the Jungsari PKK Group, including data collection on the number of members of the PKK Group, types of livelihoods, average daily income, PKK Group activities, and other data to support the implementation of the self-reliance and food security program. Chemical engineering expertise is required for the diversification of food independence and security programs.

b. The second stage is the socialization and assistance of the food self-reliance and security program. At this stage, the team members explained the innovation and diversification of processed cassava and sweet potatoes according to the food independence and security program. Participants carried out hands-on experience making these products. The Jungsari PKK Group was expected to know and understand its function, chemical properties, dangers, and the novelty of the technology.

c. The third stage is knowledge of the economic review and product marketing. At this stage, the Jungsari PKK Group learned how to calculate production costs, capital, operating profit, selling prices, financial accounting, break-even points (BEP), attractive marketing techniques, branding, and persuasive packaging.

d. The fourth stage is product marketing education and assistance. This activity included online and offline sales techniques, branding, packaging, and determining the home industry's production number.

e. The fifth stage involves regular monitoring of food self-sufficiency and food security program activities. An evaluation of the success of the food independence and security program was carried out at this stage.

3. Results and Discussion

PKK Hamlet Jungsari Karanganyar has participated in community service activities. The activity went off without a hitch, and the participants were enthusiastic. Community service activities with the theme PKK Jungsari Empowerment to Encourage Creative Economy Development Through self-reliance and food security programs have been carried out smoothly. Empowerment of community members appears to be critical for improving the economic status of its members. Making liquid dishwashing soap has a relatively positive impact on stimulating its members to be more creative.

This activity's stages include the introduction of activities such as survey activities, arranging PKM activity schedules, and purchasing materials. The second stage is self-sufficiency and food security education. At this stage, self-sufficiency and food security education is carried out through the production of hand washing soap and innovative cassava processing. The PKK group has been educated and assisted in the production of hand washing soap products and cassava processing innovations. Marketing assistance is also provided through education on creating product logos and packaging. Figure 3 depicts activity documentation.

Fig. 3. Hand soap Making and Processed Cassava product

Figure 3 depicts the activity, which begins with an introduction and progresses to training on how to make liquid handwashing soap and cassava stick. This activity was well-attended by the community. Following the educational activity was monitoring and evaluation, during which the PKK Jungsari community produced and sold this product independently. The proceeds of this sale might well increase their daily income.

4. Conclusion

This activity greatly affects PKK Jungasri Karanganyar members. This new education enlightens them to produce useful products which have economic value. This activity increases the members' motivation to make hand soap and process processed cassava with a new product, namely cassava sticks. The self-sufficiency and food security program is a breakthrough towards family food security through a community service program applying appropriate technology (PPTTG). This program is intended to provide education and improve welfare through technological skills, innovative locally processed products, and a creative economy. This activity also provides increased knowledge about marketing and packaging techniques,

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Author Contribution

Community service contributes to training PKK Jungsari women to process and utilize resources in the village.

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Conflict of Interest

The authors declare no conflict of interest.

References

[1] A. Widiyanto, "Religion and Covid-19 in the Era of Post-Truth: The Case of Indonesia," Int. J. Islam. Thought, vol. 12, no. 1, pp. 1–12, Dec. 2020.

[2] B. LIN and Y. Y. ZHANG, "Impact of the COVID-19 pandemic on agricultural exports," J. Integr. Agric., vol. 19, no. 12, pp. 2937–2945, Dec. 2020.

[3] F. Zuhairoh and D. Rosadi, "Real-time Forecasting of the COVID-19 Epidemic using the Richards Model in South Sulawesi, Indonesia," Indones. J. Sci. Technol., vol. 5, no. 3, pp. 456–462, Jul. 2020.

[4] H. Fathurahman, M. A. Berawi, I. Sulistyarini, A. Kusuma, Y. Nasution, and K. Komarudin, "Post COVID-19 Recovery Models and Strategies for Aviation in Indonesia," Int. J. Technol., vol. 11, no. 6, p. 1265, Dec. 2020.

[5] A. Clark et al., "Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study," Lancet Glob. Heal., vol. 8, no. 8, pp. e1003–e1017, Aug. 2020.

[6] H. Z. Mukhlida et al., "Review of Trial Therapy and Treatment for COVID-19: Lessons for Indonesia," Kesmas Natl. Public Heal. J., vol. 15, no. 2, pp. 99–104, Jul. 2020.

[7] S. Sultan and M. Rapi, "Positive Discourse Analysis of the Indonesian Government Spokesperson's Discursive Strategies during the Covid-19 Pandemic," GEMA Online® J. Lang. Stud., vol. 20, no. 4, pp. 251–272, Nov. 2020.

[8] P. C. Eyanoer, F. Farhat, E. R. Daulay, and F. Zaluchu, "Perception against COVID-19 Threat Affecting the Behavior of Indonesia People Three Months after the Outbreak," Open Access Maced. J. Med. Sci., vol. 8, no. T1, pp. 459–464, Oct. 2020.

[9] E. A. Pangarsa et al., "Position paper from the Indonesian Society of Thrombosis and Hemostasis (InaSTH), Semarang chapter: Management of coagulopathy in COVID-19," Bali Med. J., vol. 9, no. 2, p. 482, Jul. 2020.

[10] R. Sijabat, "Analysis of e-Government Services: A Study of the Adoption of Electronic Tax Filing in Indonesia," J. Ilmu Sos. dan Ilmu Polit., vol. 23, no. 3, p. 179, May 2020.

[11] D. Choque-Quispe et al., "Storage Conditions and Adsorption Thermodynamic Properties for Purple Corn," Foods, vol. 11, no. 6, p. 828, Mar. 2022.

[12] S. Badaras et al., "Strategy for Local Plant-Based Material Valorisation to Higher-Value Feed Stock for Piglets," Animals, vol. 12, no. 9, p. 1092, Apr. 2022.

[13] S. A. Dee et al., "Correction: Survival of viral pathogens in animal feed ingredients under transboundary shipping models," PLoS One, vol. 14, no. 3, p. e0214529, Mar. 2019.

[14] N. E. Buitimea-Cantúa, S. O. Serna-Saldívar, E. Pérez-Carrillo, T. Jordânia-Silva, D. Barrera-Arrellano, and G. V. Buitimea-Cantúa, "Textural and rheological properties of soybean oil organogels structured with polyglycerol and propylene glycol esters during storage," Grasas y Aceites, vol. 73, no. 1, p. e443, Mar. 2022.

[15] J. I. Byun and B. K. Koh, "Textural properties of Frozen stored Garaetteok supplemented with Agar and Casein," Int. J. Food Prop., vol. 20, no. sup3, pp. S2960–S2968, Dec. 2017.

[16] T. Daszkiewicz, D. Kubiak, and A. Panfil, "The Effect of Long-Term Frozen Storage on the Quality of Meat (Longissimus thoracis et Lumborum) from Female Roe Deer (Capreolus capreolus L.)," J. Food Qual., vol. 2018, pp. 1–7, Oct. 2018.

[17] Z. Sokołowicz, M. Dykiel, A. Augustyńska-Prejsnar, and J. Krawczyk, "The Effect of Storage Duration on Some Quality Traits and Composition of Eggs from Different Housing Systems," Ann. Anim. Sci., vol. 22, no. 1, pp. 459–475, Jan. 2022.

[18] R. Akkad, E. Kharraz, J. Han, J. D. House, and J. M. Curtis, "The effect of short-term storage temperature on the key headspace volatile compounds observed in Canadian faba bean flour," Food Sci. Technol. Int., vol. 28, no. 2, pp. 135–143, Mar. 2022.

[19] J. Wiesinger, K. Cichy, E. Tako, and R. Glahn, "The Fast Cooking and Enhanced Iron Bioavailability Properties of the Manteca Yellow Bean (Phaseolus vulgaris L.)," Nutrients, vol. 10, no. 11, p. 1609, Nov. 2018.

[20] L. Jahns, W. Davis-Shaw, A. H. Lichtenstein, S. P. Murphy, Z. Conrad, and F. Nielsen, "The History and Future of Dietary Guidance in America," Adv. Nutr., vol. 9, no. 2, pp. 136–147, Mar. 2018.

[21] D. Agarwal, L. Mui, E. Aldridge, R. Mottram, J. McKinney, and I. D. Fisk, "The impact of nitrogen gas flushing on the stability of seasonings: volatile compounds and sensory perception of cheese & onion seasoned potato crisps," Food Funct., vol. 9, no. 9, pp. 4730–4741, 2018.

[22] E. VASYLYSHYNA, "The quality of sour cherry fruits (Prunus cerasus L.), treated with chitosan solution before storage," Acta Agric. Slov., vol. 111, no. 3, p. 633, Dec. 2018.

[23] L. Zhang, M. Zhu, L. Ren, A. Li, G. Chen, and Z. Hu, "The SlFSR gene controls fruit shelf-life in tomato," J. Exp. Bot., vol. 69, no. 12, pp. 2897–2909, May 2018.

[24] S. M. Ghufran Saeed, S. A. Ali, R. Ali, S. A. Sayeed, and L. Mobin, "Exploring the potential of bottle gourd (Lagenaria siceraria) flour as a fat mimetic in biscuits with improved physicochemical and nutritional characteristics and anti-diabetic properties," Ital. J. Food Sci., vol. 34, no. 2, pp. 50–66, Apr. 2022.

[25] M. K. Morsy, O. M. Morsy, M. A. Abdelmonem, and R. Elsabagh, "Anthocyanin-Colored Microencapsulation Effects on Survival Rate of Lactobacillus rhamnosus GG, Color Stability, and Sensory Parameters in Strawberry Nectar Model," Food Bioprocess Technol., vol. 15, no. 2, pp. 352–367, Feb. 2022.

[26] L. A. ISOLA et al., "A review on fermented aquatic food storage quality based on heat treatment and water retention technology," Food Sci. Technol., vol. 42, pp. 1–12, 2022.

[27] M. Islam, K. Wahid, and A. Dinh, "Assessment of Ripening Degree of Avocado by Electrical Impedance Spectroscopy and Support Vector Machine," J. Food Qual., vol. 2018, pp. 1–9, Nov. 2018.

[28] S. Serra, N. Sullivan, J. P. Mattheis, S. Musacchi, and D. R. Rudell, "Canopy attachment position influences metabolism and peel constituency of European pear fruit," BMC Plant Biol., vol. 18, no. 1, p. 364, Dec. 2018.

[29] Y. Liu, W. Zheng, S. A. Ibrahim, H. Yang, and W. Huang, "Chemical properties of vacuum-fried Pleurotus eryngii during storage and characterization of brown pigment," Int. J. Food Prop., vol. 20, no. sup3, pp. S2349–S2358, Dec. 2017.

[30] I. Jordan et al., "Dietary Diversity of Women across Agricultural Seasons in the Kapchorwa District, Uganda: Results from a Cohort Study," Foods, vol. 11, no. 3, p. 344, Jan. 2022.

[31] F. Wu and X. P. Yan, "Distribution of the Related Weevil Species Sitophilus oryzae and S. zeamais (Coleoptera: Curculionidae) in Farmer Stored Grains of China," J. Econ. Entomol., vol. 111, no. 3, pp. 1461–1468, May 2018.

[32] X. Carrión-Granda, I. Fernández-Pan, J. Rovira, and J. I. Maté, "Effect of Antimicrobial Edible Coatings and Modified Atmosphere Packaging on the Microbiological Quality of Cold Stored Hake (Merluccius merluccius) Fillets," J. Food Qual., vol. 2018, pp. 1–12, 2018.

[33] V. F. Abioye, I. A. Adeyemi, B. A. Akinwande, P. Kulakow, and B. Maziya-Dixon, "Effect of autoclaving on the formation of resistant starch from two Nigeria Cassava (Manihot esculenta) varieties," Food Res., vol. 2, no. 5, pp. 468–473, May 2018.

[34] A. N. Alkuraieef and A. AlJahani, "Effect of extraction process and storage time on the quality attributes of pomegranate juice of two local pomegranate varieties," Ital. J. Food Sci., vol. 34, no. 1, pp. 24–32, Jan. 2022.

[35] M. Keshavarz, R. Barati-Boldaji, S. M. Mazloomi, and M. H. Yousefi, "Effect of inoculation of Lactobacillus acidophilus on the level of nitrite and nitrate in yogurt containing spinach during refrigeration in 21 days," Funct. Foods Heal. Dis., vol. 12, no. 4, p. 188, Apr. 2022.

[36] A. M. A. Alsuhaibani and A. N. Al-Kuraieef, "Effect of Low-Calorie Pumpkin Jams Fortified with Soybean on Diabetic Rats: Study of Chemical and Sensory Properties," J. Food Qual., vol. 2018, pp. 1–7, Nov. 2018.

[37] X. Sun, E. A. Baldwin, J. Manthey, C. Dorado, T. Rivera, and J. Bai, "Effect of Preprocessing Storage Temperature and Time on the Physicochemical Properties of Winter Melon Juice," J. Food Qual., vol. 2022, pp. 1–6, May 2022.

[38] A. Korus, "Effect of pre-treatment and drying methods on the content of minerals, B-group vitamins and tocopherols in kale (Brassica oleracea L. var. acephala) leaves," J. Food Sci. Technol., vol. 59, no. 1, pp. 279–287, Jan. 2022.

[39] X. Li et al., "Effect of Storage Temperatures on the Moisture Migration and Microstructure of Beef," J. Food Qual., vol. 2018, pp. 1–8, Jun. 2018.

[40] B. R. Aguilar Uscanga et al., "Effect of the Application of Cold Plasma Energy on the Inactivation of Microorganisms, Proteins, and Lipids Deterioration in Adobera Cheese," J. Food Qual., vol. 2022, pp. 1–9, Apr. 2022.

[41] İ. Kahramanoğlu, M. Aktaş, and Ş. Gündüz, "Effects of fludioxonil, propolis and black seed oil application on the postharvest quality of 'Wonderful' pomegranate," PLoS One, vol. 13, no. 5, p. e0198411, May 2018.

[42] S. Eshghi, R. Karimi, A. Shiri, M. Karami, and M. Moradi, "Effects of polysaccharide-based coatings on postharvest storage life of grape: measuring the changes in nutritional, antioxidant and phenolic compounds," J. Food Meas. Charact., vol. 16, no. 2, pp. 1159–1170, Apr. 2022.

[43] N. I. Khalid, S. Sulaiman, N. Ab Aziz, F. S. Taip, S. Sobri, and N.-K. M.A.R., "Electrolyzed water as a green cleaner: chemical and physical characterization at different electrolysing parameters," Food Res., vol. 2, no. 6, pp. 512–519, Nov. 2018.

[44] S. Misra, P. Pandey, C. G. Dalbhagat, and H. N. Mishra, "Emerging Technologies and Coating Materials for Improved Probiotication in Food Products: a Review," Food Bioprocess Technol., vol. 15, no. 5, pp. 998–1039, May 2022.

[45] I. Muhammad, C. Nurul Aziz, and S. Inma Yunit, "Evaluating Nutrition Students' Knowledge of Food Safety in Indonesia: Multi-Strata Comparison Review," Pakistan J. Nutr., vol. 17, no. 12, pp. 666–670, Nov. 2018.

[46] M. Iriondo-DeHond, E. Miguel, and M. del Castillo, "Food Byproducts as Sustainable Ingredients for Innovative and Healthy Dairy Foods," Nutrients, vol. 10, no. 10, p. 1358, Sep. 2018.

[47] W. Ayaz, A. Priyadarshini, and A. Jaiswal, "Food Safety Knowledge and Practices among Saudi Mothers," Foods, vol. 7, no. 12, p. 193, Nov. 2018.

[48] J. Watts, E. M. Hamerslag, C. Sprules, J. H. Shaver, and R. I. M. Dunbar, "Food storage facilitates professional religious specialization in hunter–gatherer societies," Evol. Hum. Sci., vol. 4, p. e17, Apr. 2022.

[49] V. S. Bomfim, A. A. Jordão, L. G. Alves, F. E. Martinez, and J. S. Camelo, "Human milk enriched with human milk lyophilisate for feeding very low birth weight preterm infants: A preclinical experimental study focusing on fatty acid profile," PLoS One, vol. 13, no. 9, p. e0202794, Sep. 2018.

[50] I. Steinka, "Identification and Assessment of the Behavior of Methicillin-Resistant Staphylococci in Cheese," J. AOAC Int., vol. 101, no. 4, pp. 960–963, Jul. 2018.