

Research Article

Baby Food Seasonings “Ali Pow Pow”: Flavour Explosion for Your Little Ones

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Abstract: Halal industry globally has experienced significant development, especially in the food sector. Brunei as a majority Islamic population country has been one of the players in the halal global market with potential. That also includes the rising demand and awareness of halal baby food globally to be introduced here in Brunei. This study gives an overview of product innovations that are made specifically for infants 6-7 months and above. As babies are not allowed to consume any sodium in their diet for up to 1 year above, we have come up with baby food seasoning which is healthy for infants. Our product containing mirepoix can be one of the alternative seasonings and in fact, they are more nutritious which is in line with the Maqasid Shariah - the protection of health and life. In Brunei, the number of Halal baby food products in the market is limited. Thus, this acts as our unique selling point (USP) to attract customers. In food consumption, the concept of Halalan Thayyiban is specifically designed for Muslims through the revelation of the Quran and the practices of the Sunnah of the Prophet Muhammad SAW.

Keywords: alternative seasonings; baby food seasonings; halal; healthy choice



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1. INTRODUCTION

The role of nutrition in the human life cycle is very important. Infancy is a stage where growth and development occur very quickly (Gillman, 2010), from when the baby is born until he is 1 year old. One of the stages that will decide a person's survival in the future is between the ages of 0 and 24

months (Sudarianti, Susanti, & Sari, 2022; Rahmi & Ruspita, 2021) because it is a period of rapid growth and development, which sometimes known as a crucial and golden period (Victoria, et al., 2008; Rahmi & Ruspita, 2021). If newborns and children obtain the right amount of nutrients during their stage of development, the "golden period" can be realized (Rahmi & Ruspita, 2021). Contrarily, the golden era will change into a crucial period, disrupting the growth and development of newborns and children both now and in the future, if they do not eat food that meets their nutritional demands (Rahmi & Ruspita, 2021).

According to UNICEF (2021), meeting a child's nutritional needs throughout childhood can be challenging, and many parents face difficulties in preparing meals for their kids that are wholesome, cost-efficient, and age-appropriate. Children's first foods are often low in energy and nutrients, sugary beverages and packaged snacks heavy in salt, sugar, and fat are increasingly being served as part of their diets (UNICEF, 2021). For proper growth and development, children require a steady supply of both macronutrients such as proteins, fats, and carbohydrates, and micronutrients namely vitamins and minerals (EFSA, 2017; Savarino, Corsello, & Corsello, 2021; Migowa, 2022). Improving the quality of children's consumables and dietary practices during the first few years of life is fundamental to preventing all forms of malnutrition (UNICEF, 2021). Malnutrition prevents the brain from developing as quickly by negatively altering its structural and functional capabilities (Kar, Rao, & Chandramouli, 2008), which causes defects in development in children across all domains (Saleem, Zakar, Bukhari, Fatima, & Fischer, 2021). To guarantee that children reach their developmental potential, which includes both physical and psychological well-being, it is crucial to monitor their health and nutritional condition (WHO, 2018).

Noticeably, there has been a worldwide upsurge in the number of children with autism spectrum disorder (ASD) identified over the previous several years. According to reports, ASD is one of the most common developmental disorders in existence today and has reached pandemic levels (Cekici & Sanlier, 2019). Similarly, in Brunei, Minister of Health, Dato Seri Setia Dr Haji Mohd Isham bin Haji Jaafar disclosed during the World Autism Awareness Day in 2022 that autism rates have increased six-fold compared to 10 years ago (Azahari, 2022). Child Development Centre at RIPAS Hospital in Bandar Seri Begawan and the Paediatrics Department at SSB Hospital in Kuala Belait reported that there were 1,858 children and youth with autism in 2019 (APCD, 2019). ASD is a collective term for a variety of developmental impairments, some of which are emotional illiteracy, symbolic behaviour, and communication and social interaction challenges (Cekici & Sanlier, 2019).

Though ASD is not caused by malnutrition or food-related challenges, several studies show that dietary intake substantially influences persons with ASD (Judy, 2022). Even though the origins and causes of ASD remain a partial mystery, the parent should be cautious of their infant's food intake to ensure that what the infant consumes is safe. For this reason, the researchers come up with an idea of product innovation of healthier choice of baby food seasonings, in which most of the ingredients are organic. The seasoning powder is a mixture of different substances used primarily in cuisine for improving test of food. Baby food seasoning Ali Pow Pow was introduced to be used by all mothers to replace the use of salt and MSG seasoning in their children's food.

2. MATERIAL & METHOD

2.1 Material

The material used for this study is baby food seasonings Ali Pow Pow. The ingredients of this baby food seasonings are carrots, onions, celery, chicken and water as shown in Table 1.

Table 1. Ali Pow Pow Ingredients

Ingredients	Chicken breast	Carrot	Celery	Onion	Water	Cloves
Weight (gram) / Amount	175g	90g	185g	110g	140g	2 pieces

2.2 Method

The study adopted both qualitative and quantitative designs. The approach proceeded through two steps: data collection of primary and secondary data, and data analysis. The secondary data were obtained through a literature review to gain a better understanding of baby food seasonings. While the primary data was obtained from the food test laboratory analysis and survey of market acceptability test and sensory analysis. By utilizing a combination of techniques, we were able to gather both subjective and objective feedback regarding the quality of our product. This feedback was then used to make the necessary adjustments to ensure customer satisfaction. The questionnaires used in this study solely focus on the baby food seasoning Ali Pow Pow. All questions are directly related to the product and its features.

2.3 Baby Food Seasoning Ali Pow Pow Preparation

After preparing the ingredients, the first step, chop each ingredient and mince the chicken breast so that they can be processed easily in the next step. Before proceeding, however, the ingredients must be washed with water to clean them. In our preparation process, we adhered to the Standard Operating Procedure (SOP) by ensuring personal hygiene and a clean environment while handling the ingredients. This involved the use of plastic gloves, prior hand cleaning, and sanitized utensils such as knives and cutting boards.

Then, continue preparing the baby food seasoning. Several steps must be considered. First, use a thermomix to process the minced chicken breast for 25 seconds at a speed of 5, then set it aside. Next, blend the carrot, onion, and celery for 45 seconds at a speed of 5 in the thermomix. After 45 seconds have passed, add the blended chicken, two cloves, and 140 grams of water to the thermomix, along with the blended onion, carrot, and celery. It was cooked for 25 minutes at a temperature of 120 degrees Celsius and a speed of 2 with the lid open. After 25 minutes, the product or result is spread on a baking tray and baked for 45 minutes at 110 degrees Celsius in an air fryer. While waiting, we gradually checked it by mixing it in between. After 45 minutes, allow the product to cool and then blend for 2 minutes and 50 seconds to make it finer. As our product is a powder, we sift it as a final step to obtain a superior result and a powder baby food seasoning.

2.4 Sensory Analysis

A hedonic scale was used for sensory analysis following a technique outlined in many literature sources (Amankwah, Barimah, Nuamah, Oldham, & Nnaji, 2009; Bahlol, Sharoba, & EL-Desouky, 2007; Muhimbula, Issa-Zacharia, & Kinabo, 2011; Temesgen, Retta, & Tesfaye, 2016) with some modifications (Tahmaz, et al., 2022a). The 5 panellists were mothers whose children were aged 10 months to 4 years old. The panellists are asked to cook for their children by using the Ali Pow Pow baby food seasonings as an alternative to the seasonings they usually use. The panellists were given a sensory evaluation sheet for the sample, which contained a hedonic scale of 10 points, from "Strongly dislike" (1) to "Strongly like" (10) and was used to rate the sample's acceptance overall as well as its colour, texture, flavour, and appearance.

2.5 Market Acceptability Test

Quantitative data was obtained through a survey as a tool to obtain primary data. The sampling for data collection through an online questionnaire via Google Forms was disseminated through

WhatsApp to examine a group of mothers residing in Brunei Darussalam, whose ages ranged from their 20s to 30s or older. The research was conducted over a period of two consecutive days, specifically from April 29 to April 30, 2023, and involved a sample of 30 respondents. This method is used because it is favourable for the respondents to share and spread it out.

The survey consisted of questions that aimed to assess the level of awareness and demand for baby food seasonings in Brunei Darussalam. The survey data was utilized to obtain a thorough comprehension of the product's perceptions and attitudes among mothers. Our forms "Healthier and Organic alternative Baby food seasoning: Ali pow pow, awareness and demand in Brunei Darussalam" were conducted to analyse how far the knowledge of the importance of serving baby healthy food.

2.6 Food Tests Laboratory Analysis

The baby food seasoning Ali Pow Pow was analysed at the Ibnu Sina Laboratory, Universiti Islam Sultan Sharif Ali, Sinaut Campus on April 18th 2022. Various food tests were analysed for protein, fat, starch and reducing sugar. Following Ihsani, et al, (2020), three times were carried to each test. The protein content was analysed using the biuret test, fat using the ethanol emulsion, the presence of starch using iodine, and reducing sugar using the Benedict. The product's nutritional content was assessed using a food testing technique and its compliance with the necessary standards was confirmed.

3. FINDINGS

3.1 Ali Pow Pow: Baby Food Seasoning

Figure 1 illustrated the final products of Ali Pow Pow baby food seasonings.



Figure 1. Ali Pow Pow: Baby Food Seasoning

3.2 Sensory Analysis

The score given by each panellist for each attribute and the average score is shown in Table 2. From Table 2 it is shown that the Ali Pow Pow baby food seasonings were acceptable.

Table 2. Mean Sensory Score of Ali Pow Pow Baby Food Seasonings

Sensory Attribute	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Average
Colour	8	8	8	8	9	8.2
Texture	7	8	8	8	8	7.8
Aroma	5	7	7	8	8	7
Appearance	7	8	8	8	9	8
Overall Acceptance	7	7	8	8	8	7.6

3.3 Market Acceptability of the Baby Food Seasoning

According to the results, based on the responses from the respondents through the online questionnaire, the socio-demographic features of respondents as illustrated in Table 3.

Table 3. Respondents' Socio-Demographic Details

Variable	Description	<i>f</i>	%
Mother's age	20-29 years old	7	23.3
	30 & above	23	76.7
	Total	30	100.0
Education Level	Secondary school or diploma	20	66.7
	Bachelor's degree or higher	10	33.3
	Total	30	100.0
Children's age	Below 6 months	26	86.7
	More than or equal to 6 months	4	13.3
	Total	30	100.0
Occupation	Government	14	46.7
	Private	7	23.3
	Self-employment	2	6.7
	Other	7	23.3
	Total	30	100.0
Total Children	1	9	30
	2	6	20
	3	4	13.3
	4	3	10
	5	4	13.3
	6	2	6.7
	7	1	3.3
	8	1	3.3
	Total	30	99.9

Table 4 tabulated the perception of the respondents toward giving healthy food to their children in general.

Table 4. Awareness of Healthy Food to Children

Variable	Description	<i>f</i>	%
Do you think it is important to give children healthy food?	Yes	30	100
	Total	30	100
Do you agree, giving children healthy food will control their behaviour?	Yes	28	93.3
	No	2	6.7
	Total	30	100.0

Whereas, Table 5 tabulated the market acceptability test of Ali Pow Pow baby food seasonings.

Table 5. Market Acceptability of Ali Pow Pow Seasonings

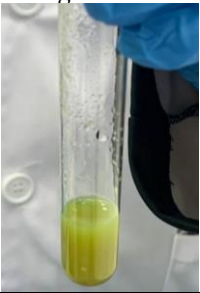
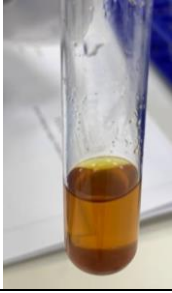
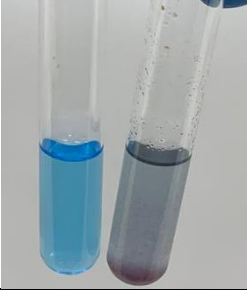
Variable	Description	<i>f</i>	%
Are you willing to buy our product?	Yes	7	23.3
	No	1	3.3
	Maybe	22	73.3
	Total	30	99.9
It is possible to market our product in Brunei?	Yes	30	100
	Total	30	100.0
Do you recommend our product to others?	Yes	28	93.3

	No	2	6.7
	Total	30	100.0
Do you know any local competitors that made and sell halal baby food seasonings?	Yes	1	3.3
	No	29	96.7
	Total	30	100.0
If yes, stated the product	Anggun Tropika Sg. Liang Fawwaz Babytummy.bn		
Any recommendations to improve our product?	The packaging – baby friendly Distribute the testers in a small packet Market the Ali Pow Pow at the convenience store Advertise via social media and mass media More product variations (beef, chicken & cheese flavours)		

3.3 Food Testing Analysis

The result of the food test analysis Ali Pow Pow is shown in Table 6.

Table 6. Ali Pow Pow Food Test Analysis Results

Reagent	Food Test	Initial Colour	Result	Indicator
Benedict's	Reducing Sugar	Blue	Light Green	Low level of Reduced Sugar
				
Iodine	Starch	Yellow	Brown	Starch Absent
				
Biuret	Protein	Blue	Lilac	Protein Presence
				
Ethanol	Fat	Colourless	Colourless	No fat detected



4. DISCUSSION

4.1 *Nutritional contents included for infants' development and growth*

Early childhood development is associated with a greater requirement for nutrients and energy to meet the physical demands of the body for quick growth and brain development, quick recovery from infection, and general mobility, so consuming sufficient nutrition is essential. Additionally, the human brain can develop to its maximum capacity if it is given enough vitamins and minerals, which is a vital factor in nutrition (Suha, 2020). Daily food intake requirements are based on the age, gender, and daily activities of the child. For infants below 1 year old, they only need 100cal/kg/day e.g., the baby's weight is 3.9 kg. The baby needs 390 kcal per day. As for ages 1 to 3 years, they need 80kcal/kg/day (Faizan & Rouster, 2022). Thus, low-sugar and low-salt foods are important for babies above 6 months. Infants' first complementary meal intake of veggies may help them develop better taste preferences if they consume them regularly (Rapson, von Hurst, Hetherington, & Conlon, 2021).

Besides, the purpose of seasoning powders, which are composed of a variety of chemical compounds, is to improve the flavour and taste of the dish to which they are added (Tahmaz, et al., 2022b). According to European Spice Association (ESA) cited in Tahmaz, et al. (2022b), seasoning is a mixture of legal food ingredients that is applied as needed to accomplish the goal for which it is intended (for example, to enhance the flavour, eating quality, and/or functioning of a product). One or more herbs, spices, and other flavour-enhancing substances are often found in seasoning for a better taste of food (Tahmaz, et al., 2022b). In addition to improving flavour and taste, seasonings can also have utilitarian qualities such as thickening, emulsifying, preserving, tenderizing, and colouring.

4.1.1 *Vegetable Carrots, Onions and Celery*

The storage root of the carrot is a strong source of nutritional fibre, vitamins, and carotenoids as well as being high in minerals and antioxidants, carotenoids function in preventing cancer, cerebrovascular disease (CVD), and cataracts (Que, et al., 2019). According to Krinsky's research, consuming fruits and vegetables high in carotenoids can help avoid a wide range of illnesses, particularly those that are eye-related. Carotenoids are nutrients that convert to vitamin A in the body which can support healthy vision. A group of substances known as dietary fibre mostly consists of lignin, polysaccharides, and carbs. Dietary fibre is well-known and well-liked in society as a beneficial component. The widely known benefit of dietary fibre is its role in improving gastrointestinal function. By improving intestinal peristalsis and increasing the volume of faeces, insoluble fibre can enhance digestive health (Que, et al., 2019). Additionally, dietary fibre has been linked to a variety of other health benefits, including lowering cholesterol, regulating hunger, modulating the postprandial insulin response, and lowering the risk of coronary heart disease. Humans should consume enough dietary fibre to maintain excellent health. This can help prevent paediatric constipation among children. According to Levy et al (2017) study, constipation in children rates are between 1% and 30%, especially in boys.

Onion may be known as a herb, to spice the cooking. Not only is onion a flavour provider, but it also has strong nutritional value. They contain all of the plant-derived B vitamins, including vitamin B6, along with some folate, biotin, and choline, which can be deficient in a baby's diet for the first 6 months but are crucial for growth. Vitamin C, which is also present in onions, aids in the body's absorption of iron from plant foods like robust greens and legumes (Ruiz, et al., 2023). Same as carrots and celery, onions are also rich in antioxidants which reduce the risk of getting cancer. Onion also contains calcium (National Onion Association, 2023) which is very important in child growth a condition of deficiency in calcium could lead to rickets; bones become weak and soft affecting the spine can cause bone pain and stunted growth of a child and a case of babies it can cause fatal and infections (John Hopkins Medicine, 2023).

Celery helps shield against urinary tract obstruction, liver and liver-related illnesses, jaundice, and cardiovascular disease. Celery reduces glucose, blood lipids, and blood pressure, which can strengthen the heart (Kooti, 2017). Celery has antifungal and anti-inflammatory properties, its seeds are useful for treating bronchitis, asthma, and chronic skin disorders including psoriasis which also can treat eczema in babies as eczema is not abnormal in babies, 20% of babies in the UK (National Eczema Society, 2023) suffering from eczema, whether it is genetic or not. Plants are a significant source of biologically diverse and varied natural active substances; phenolic acid is present in celery and can attract free radicals and plant antioxidants. Celery also creates flavonoids, which to is found to have many medicinal benefits including anti-inflammatory, antiviral properties, anticancer, and antioxidant (Ullah, et al., 2022) these will combat free radicals to decrease oxidative stress and may be crucial in lowering cancer risk (WebMD Editorial Contributors, 2022). Celery is also found to have a good source of Vitamin A; good for vision and the immune system, Vitamin K; important for blood clotting, and Vitamin B9- folate; which helps in proper brain function (WebMD Editorial Contributors, 2022). Thus, we chose celery as one of the main ingredients of this product; to help in the growth of the infant as well as building their immune system.

All three of these vegetable allergies are rare, thus the choice of the vegetables is considered. Additionally, organic food undergoes less processing and contains no artificial additives or preservatives (USDA, 2019; Liu & Sam, 2022). Given that children are at a critical stage of development and have a high food-to-body weight ratio, consumers may be particularly concerned about pesticide residues in foods intended for them (Maguire, Owens, & Simon, 2006; Liu & Sam, 2022). Liu and Sam's (2022) research findings, parents are often willing to pay 17–27% more for organic baby food to lessen their children's exposure to pesticide residues. According to Curl, Fenske, and Elgethun (2003) study's, parents are generally willing to spend an additional 17–27% of their income on organic baby food, presumably to limit their children's exposure to pesticide residues. Through repeated questionnaires, Kummeling, et al. (2008) analyze the connection between eating organic food and infants' eczema in the Netherlands. According to their findings, infants who consume organic dairy products in the first two years of life have a lower risk of developing eczema. Consumers often have positive opinions of organic food and link it to health benefits, despite the fact that there is not any reliable scientific proof that it's safer or more nutritious than conventional alternatives. (Ellison, Duff, Wang, & White, 2016; Lee, Shimizu, Kniffin, & Wansink, 2013; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007).

4.1.2 Chicken

Protein from sources like chicken is an essential part of a child's daily diet, especially for infants older than 6 months. It is essential for the body's maintenance and repair. Compared to older kids and adults, babies and toddlers require more protein in their diets. Along with breast milk or formula, solid foods high in protein can now be introduced at this age. A diet full of nutrients is crucial for growing and developing youngsters. Protein is especially important for infants since throughout the first six months, their body weight doubles. Lack of protein intake might slow down growth and development as well as affect their heart and lungs (Mrunal, 2022). Thus, we considered adding chicken (a source of

protein) into our product because of these factors that will be beneficial and help to prevent the drawback from happening due to protein deficiency for the development of infants and toddlers.

4.2 Market Acceptability Test of Baby food seasoning: Ali Pow Pow

As stated in Table 3 all the respondents agreed that it is important to provide children with healthy food. There are only 2 who disagree that giving healthy food to children will control their behaviour. When questioned on the halal local baby food seasonings in Table 4, there is a mistake on the products stated. According to our research, Fawwaz is a Malaysian brand but is sold to Bruneians through their reliable agent, thus showing that the Bruneian local market for baby food seasoning is very little. The respondents also mention, locally made “baby purees” and “babytummy. bn” which is from our research is an online seller that sells freshly made baby purees and frozen cubes but there is no locally made baby food seasoning in “powder-like”. The respondents also listed Anggun Tropika Sg.Liang, which is from our findings is a local shop that sells baby’s and mother’s essentials from food to body care; those products are imported from other countries such as; “offspring” and “Fawwaz”. Technically, there are no local sellers or companies that produce baby food seasoning powder in Brunei. Therefore, our product is considered the first to produce local baby food seasoning in powder form. Hence, this feedback shows that our product is marketable in Brunei Darussalam.

The following recommendations are made considering the feedback of the thirty mothers who participated in our survey or questionnaire regarding Ali Pow Pow baby food seasoning. Out of the thirty, nine gave their thoughts on product improvement. After analysing the feedback from the mothers who participated in our survey and sensory analysis, we have developed several recommendations to improve our baby food seasoning product, Ali Pow Pow. Based on the input of nine mothers who provided suggestions for improvement, we suggest focusing on improving the packaging. Specifically, mothers recommended that a picture of a baby be included to more indicate that the product is for babies, that the bottle be designed with mothers in mind, and that measurements such as small holes be included to prevent over-pouring.

Packaging serves as a crucial tool in marketing, primarily for sales purposes, by appealing to a wide range of consumers and enhancing the product's overall image (Talib & Johan, 2012). Additionally, Gray and Guthrie (1990) claimed that the primary factor influencing consumers' decisions to buy a product at the point of sale is the product's packaging (Talib & Johan, 2012). Concerning halal, Rezai, Mohamed, and Shamsudin (2012) discovered some components of packaging, such as a halal certification or logo, an ingredient list, and the country of origin of the food. Furthermore, the most important thing to consider before purchasing a product is the halal logo (Nooh, nawai, & Dali, 2007). In 2012, Talib et al. noted that very few studies have been done on halal packaging.

However, after the outbreak of COVID-19, Wachyuni and Wiweka (2020) found that the pandemic changed consumption behaviour patterns to become healthier. This phenomenon results in more demand for halal products among Muslim and non-Muslim consumers, and researchers have shown an increased interest in studying every aspect related to halal, including the issues and importance of halal packaging. Nevertheless, there is still a need for more study among the Bruneian people. Further research is required to explore the factors that influence Bruneian consumers' purchasing decisions when it comes to halal products and packaging. This could help businesses better understand the needs and preferences of their target market and develop more effective marketing strategies. Ultimately, the results of this research could assist Brunei's halal business to expand and thrive while also helping to satisfy the rising demand for halal goods both domestically and abroad.

Additionally, some mothers suggested that the product could benefit from a wider variety of flavours, like beef and cheese. We recommend conducting further research to determine which flavours would be most appealing to our target market and incorporating them into our product line. Another

suggestion was to make the product more easily accessible by selling it in stores and on more online platforms. We will explore opportunities to expand our distribution channels to make our product more widely available to our customers. This will not only increase our customer base but also improve our brand recognition and market share. However, we will need to carefully evaluate the costs and benefits of each distribution channel before making any decisions.

4.3 Sensory Analysis

We approached and interviewed 5 panellists with babies and asked for their feedback after consuming our product by providing a sample of our product. The panellists are then required to observe their baby's expression and will give feedback.

Table 6 shows a mean result of sensory analysis, in terms of the aroma the rating is quite low compared to the other attribute score and has a strong rating in terms of appearance. The mean of the Ali Pow Pow overall acceptance is 7.6, which shows that the product is accepted. It has been demonstrated that introducing babies to single meals and repeatedly exposing them to the same food over multiple days favours acceptance (*Birch & Fisher, 1998*) and It has been demonstrated that increasing the intake of vegetables by initiating complementary feeding with only veggies (*Barends, de Vries, Mojet, & de Graaf, 2013*) for up to 12 months (*Garcia, McLean, & Wright, 2016*)

The panellists also mention that the product is great in developing a baby food palate, this is supported by (*de Cosmi, Scaglioni, & Agostoni, 2017*) food preferences are made during the early stage of taste experience which would later be food choices. Thus, this is the purpose of our product of baby food seasoning, which not only maintains health in the early stage of life but also prolongs it as the baby grows into an adult.

Moreover, sensory testing is also essential. We gave some mothers testers or samples of our product to give to their children and instructed them to evaluate it in terms of colour, aroma, taste, texture, and overall appearance and performance. So far, there has been no negative reaction to Ali Pow Pows' baby food seasoning for their child. Instead, they say it is soft, healthy, good for babies, and a good alternative to salt and MSG (monosodium glutamate). Not only that, one mother mentioned that her child is a picky eater, but still, there were no issues with the flavour, colour, aroma, or texture, and overall, the acceptance of the products is between 7 and 8, which is relatively high. This positive review from mothers indicates that Ali Pow Pow baby food seasoning is safe and palatable for babies, which can be a good option for parents who want to add flavour to their child's food.

4.4 Food Tests Analysis

Food testing is conducted to evaluate the presence of nutrition and food compounds in our baby food seasonings. According to Athuman (2022), food testing is the process of identifying several significant substances in food. While some tests measure a substance's existence in food, others can estimate how much of a component is present. The primary food tests include the Biuret test for protein, the iodine test for starch, Benedict's test for glucose, and the tests for determining the presence of lipids in a food sample. Food may be tested to see the kinds of foods it contains. For the detection of starch, proteins, sugars, and fats, many tests may be utilized. These involve adding reagents to a food sample, and the presence of certain biological components causes the reagent to change colour. Before adding the reagent, it might sometimes be necessary to grind the food if it is solid or the right way add distilled water to it if the sample is liquid.

The process of food testing also plays a significant role in the effective manufacturing of safe and valuable processed food items. It serves as a means of verifying the authenticity of the food product, thereby ensuring the quality of its contents. Food testing is a vital process that safeguards consumers from potential economic fraud and guarantees the safety of the food they consume.

Consumers must possess knowledge regarding the nutritional content of food items to facilitate informed decision-making about their daily dietary intake. In this regard, we have conducted a laboratory nutrition analysis of our product. Simultaneously, the findings of the analysis may assist individuals with allergies in abstaining from consuming compounds to which they are allergic or identifying foods that should be avoided (Aparna, Kata, & Mohammed, 2022).

4.4.1 Iodine Test for Starch

Starch is a complex carbohydrate with thousands of units of glucose, its ratio varies depending on the type of plant it comes from and is either structured in linear chains (known as amylose) or branching structures (known as amylopectin) (*Starch Europe*, 2020). In the iodine test, the objective to detect is the presence of starch in a food sample. When tested with iodine, it results in a blue-black colour if starch is present whilst, it remains brown if starch is absent. In the food testing that is carried out, a few drops of iodine solution were added, and brown colour is visualised rather than blue-black. The brown colour indicates the absence of starch because onions, celery, and carrots are classified as non-starchy vegetables.

Non-starchy vegetables are defined as vegetables that are low in carbohydrate content and have minimal effect on human blood sugar levels. Starch also can be eaten as a balanced diet alongside some other proteins as it is low in calories (*America's Test Kitchen*, 2018). Additionally, the presence of starch may not be suitable for babies who find it difficult to consume starch. There is a decrease in starch digestion in the small intestine and faecal starch is identified in infants above the age of 3 years. Additionally, according to Edwards and Parrett (2003), there is a stagnant flow in the development of the infant digestive system due to the excretion of starch in faeces. Thus, from the above explanation, our product is suitable and safe to be consumed by infants and children as it is starch free. Due to the significant proportion of protein and fat that is produced in infant food spices, the carbohydrate value is diminished (*Ihsani, et al.*, 2020).

4.4.2 Benedict's Test for Reducing Sugar

In Benedict's test, the compounds of food to be detected are sugar. Here, the term "reducing sugars" refers to simple sugars made up of substances like maltose and glucose, which give living cells energy. "The sugar contains aldehyde groups that are oxidized to carboxylic acids" is the definition of this term. Benedict's test results in green/ yellow/ orange/ red depending on the sugar concentration present in the sample whereby red consists of a high concentration of sugar. It remains blue if reducing sugars is absent. When our product is tested with Benedict's solution and then heated in a hot boiling water bath for 2 minutes, the blue colour of Benedict's solution turns to light green which indicates the presence of a low concentration of sugar, as stated in Table 5. Vegetables contain the least amount of sugar in their composition which makes them the healthiest food option. Glucose, maltose, and fructose are all components of sugar. The fructose content of dried onions was determined. Dried celery roots are a type of vegetable that contains glucose. Hence, our product contains a considerable amount of sugar which is suitable for infants' and children's consumption.

The effect of sweet foods on babies' health in the future is crucial; for instance, they may raise their chance of becoming overweight or obese compared to those who consume the least sweet foods (*Sugyan & Zakharova*, 2022).

4.4.3 Biuret Test for Proteins

Proteins are a nutrient that the body requires for growth, constructing body structure (muscles, skin, and bones), as a replacement for tissues that are already reliant on them, as well as for the formation of new tissues and energy reserves in the body during the process of metabolising vital nitrogen sources for synthesising proteins in growing children (*Semba, et al.*, 2016; *Almatsier*, 2009).

Infants between the ages of 6 and 12 months are undergoing a crucial stage of rapid growth and are becoming more and more reliant on extra food. Animal protein must be consumed every day in addition to vegetable protein for the body (*Ihsani, et al., 2020*).

In the detection of protein, a biuret test is utilized. According to (*Burton, 2015*), after the addition of a biuret solution, the purple colour will be seen if the protein is present whilst, it will remain blue if the protein is absent. Table 5 above, shows a comparison of biuret solution changes from (blue) to purple after adding biuret to a sample of our product. Hence, the food test shows a result that indicates the presence of protein when our product is tested with the Biuret reagent. As explained earlier, protein is beneficial for the development and growth of babies.

4.4.1 Ethanol Emulsion Test for Fats

In ethanol emulsion tests, the food compounds needed to detect are either fats, oils, or lipids. Ethanol is a colourless solution that is used to test for fats and oils. Because test solutions are suspended in ethanol during this procedure, which is known as an emulsion test, any present fats can dissolve. Alcohol is a solvent for fats. It is explained that water turns cloudy if fat is present whilst it remains clear or colourless if fat is absent. After adding ethanol mixed with distilled water into our product, it stays colourless hence Table 5 indicating the absence of fat in our baby food seasonings.

5. CONCLUSION

It can be very challenging for parents to provide their children with the proper nutrition they need, especially when it comes to preparing healthy and age-appropriate meals. In order to address this issue, we surveyed to find out what mothers in Brunei Darussalam are thinking about and how they can benefit from local baby food seasonings. Unfortunately, more than 70% of the respondents were unaware that halal infant food products were sold in the nation. With the help of Ali Pow Pow, we can provide a solution to this issue by introducing a variety of baby food seasonings for mothers that are halal, safe, and effective.

One of the main advantages of Maqasid Shariah for children is the provision of food. According to the Qur'an in Surah An-Nahl, verse 5, Allah Subhanahu Wata'ala created cattle that provide the people with benefits, warmth, and food to eat. In light of this, to meet the needs of children in Brunei, Ali Pow Pow utilizes ingredients that are following Maqasid shariah, the standard for halal meals, and Halalan and Thayyiban concepts. Besides being nutritious, Ali Pow Pows baby food seasonings also help parents address other aspects including their future and religious beliefs.

Apart from that, the use of sensory testing and chemical analysis in combination with the formulation of Ali Pow Pow ensures that its products are both safe and appealing to children. Unlike some other baby food products, Ali Pow Pow is free of preservatives and harmful additives. However, it is still important to conduct further studies to learn more about the long-term effects of these products and the preferences of Bruneians. In addition to conducting a survey, we also need to conduct additional research on the packaging and other aspects of the product. Overall, it is essential to prioritize infant safety and well-being by carefully selecting and testing baby food seasoning products before introducing them into their diets.

Ali Pow Pow could be the substitution of sodium chloride or an alternative for salt and seasonings in baby food, enhancing the flavour of the dish. Additionally, these ingredients have substances that have beneficial effects on health, making them a type of food with functional qualities.

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