

# Factors Influencing Urban Consumers' Choice of Processed Fruit and Vegetables in Sri Lanka

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## **Abstract**

*This study was aimed at exploring urban consumers' perceptions towards processed fruit and vegetable products in Sri Lanka. Purposive sampling and multistage sampling were employed in the sample selection of traders and consumers, respectively. A pre-tested structured questionnaire was used to interview selected traders (30) and consumers (384) in the Colombo, Gampaha, and Kandy districts. In terms of processed fruits and vegetables 172 local and 110 imported brands are available in the surveyed supermarkets and special outlets in surveyed areas. It was found that, frequently consumed major processed fruit and vegetable products are sauce (58.59%) and jam (34.38%). Family preference (68.23%) and convenience (48.44%) are the major reasons for consumption of these products. Not being healthy for some diseases (69.27%) and quality assurance issues (66.93%) are major factors that prevent consumption of some types of processed fruit and vegetable products. Majority (55.62%) of the consumers suggested ensuring the quality and standards of processed fruit and vegetables products. Consumer-oriented product development and novelties in fruit and vegetable processing are recommended. Further, there is a need for effective and stringent policies for the development of the processed fruit and vegetable industry in Sri Lanka.*

**Key Words:** Consumption, Descriptive Analysis, Fruit and Vegetable Processing, Product Availability, Urban Households

**JEL Classification:** E21, C0, L6, L22, D1

## **Introduction**

Processed fruit and vegetables are gaining popularity as a well-rounded diet, providing a wide range of nutrients rich in fiber, vitamins, minerals, and antioxidants. Sarfo *et al.*, (2022) stated that adding certain types of processed fruits and vegetables into diets can address micronutrient deficiencies. Fruit and vegetable grow abundantly in Sri Lanka and are used either for direct consumption or processing into secondary products for the consumer market (Curtis and Gunethilake, 1986). More than 96% of the entire fruit and vegetable produced in the country is locally consumed as fresh products without any

value addition. Less than 4% of the total production of fruit and vegetables undergoes some value addition in the form of export, processing, or marketing to the high-value market through supermarkets (Esham *et al.*, 2006). However, product categories such as processed vegetables, fruits, concentrates, and juices reported a rapid growth during the past decade; therefore, those are set to be upgraded and promoted in overseas markets (Export Development Board, 2022). Tomato, chili, and gherkin are the major vegetables used for processing, mainly for products such as chutney, pickles, sauce, and gherkin in brine and vinegar, while pineapple, mango, melon, papaya, and passion fruit are the major fruits used in the fruit processing industry to produce ready-to-serve beverages, squash, and jam. According to the Dissanayake *et al.*, (2022), processed fruit products such as banana, pineapple, and mangoes have shown a positive growth in terms of export value from 2010 to 2020.

The food processing industry is rapidly evolving to meet the growing world population of over 9.7 billion, requiring a 70% increase in food demand by 2050, primarily utilizing fruit and vegetables (Salim *et al.*, 2017 as cited in Bisht *et al.*, 2023). Consumers are increasingly seeking processed fruit and vegetables due to their nutritional and health benefits. Manufacturers are highlighting their nutritional content through clear labeling and marketing strategies. Health trends, such as plant-based diets, environmental concerns, and health consciousness, are driving demands for innovative processed products, including processed fruit and vegetables in vegetarian and vegan options (Moura and Vialta, 2022). Furthermore, increasing food convenience has been one of the food industry's main objectives in the last few years, and has been achieved mainly by processing food products (Tarancon *et al.*, 2021). The fruit and vegetable processing sector is one of the core segments of food processing in Sri Lanka. The development of fruit and vegetable processing is critically important to the expansion and diversification of the agricultural sector in Sri Lanka. Such activities would reduce the seasonality of consumption of a range of processed foods, minimize post-harvest losses, and increase profitability and sustainability of production systems, besides increasing farm income, rural employment, and foreign exchange earnings and reducing marketing risks (Roy and Ojha, 2012; Geetanjli, 2017; Ojha, 2018).

However, understanding consumers' needs and possible barriers to acceptance of these technologies is however essential to assess the commercial feasibility of processed fruit and vegetables (Song *et al.*, 2022). Further, Sri Lanka imported 125,939 metric tons of processed fruit and vegetable amounting to Rs. 10,363 million in year 2021 (Ministry of Industries, 2022). The importation of processed fruit and vegetable is an indication that there is demand for processed fruit and vegetable in Sri Lanka. However, only a limited number of studies has been conducted on consumer perceptions of processed fruit and vegetable in Sri Lanka. Bandaranayake *et al.*, (2016) focus only about consumer perception of processed fruit products in the Kurunegala district. Therefore, it is important to identify the factors that affect consumer preference towards processed fruit and vegetable products in order to enhance the processed fruit and vegetable industry in

Sri Lanka through novel product development and enhance the quality of prevalent products. Further, processing and value addition are two of the main national research thrusts identified by the National Committee on Postharvest Technology and Human Nutrition (SLCARP, 2017). In this context, the present study aims to identify the processed fruit and vegetable products availability and assess the urban consumers' perception and preference towards processed fruit and vegetable products in Sri Lanka in order to suggest policy measures to enhance the processed fruit and vegetable industry in Sri Lanka.

Introduction section of this paper presents the background and study objectives while literature review provides the existing literature regarding consumption patterns and consumer perception of processed fruit and vegetable. Methodology section contains the materials and methods which were used to achieve the study objectives. Final section of this research paper is devoted to results, discussion and recommendations.

### **Literature Review**

This section offers a comprehensive review of the corpus of existing literature and highlights relevant research gaps. Sijtsema *et al.*, (2012) who analyzed the consumption and consumer perception of processed fruits in Western Balkan countries found that fruit juice is consumed in these nations in greater quantities than jams and dried fruits. Price, a predilection for fresh fruits, and the lack of regular consumption of processed fruit products were the main barriers to consume processed fruit. Furthermore, consumer-oriented product development and originality in fruit processing were suggested by Sijtsema *et al.*, (2012).

A study by Bandaranayake *et al.*, (2016) aimed to determine the range of processed fruit products available in the market and consider urban consumers' opinions about popular varieties such jam, cordial, juice, pickles, and chutney. Customers ranked flavour, fruit species, price, and package size as their top concerns when buying selected processed fruits, with advertising being the least important factor. Furthermore, the country of origin, additives and preservatives, and nutritional information were given relatively little thought. The results showed that most customers cited convenience as their top justification for eating processed fruit products. The belief that processed fruit products were not healthy was the biggest obstacle in purchasing them.

Young (18–30 years old) and middle-aged (45–60 years old) customers' perceptions and attitudes regarding non-thermally processed fruit and vegetable items are examined by Song *et al.*, (2020) in a few European nations. The main barrier to consumers' acceptance of non-thermally processed fruit and vegetable items was found to be a lack of fundamental information and trust. To increase societal awareness and confidence in non-thermally processed fruit and vegetable products, consumer-focused education and communication are crucial.

Tarancon *et al.*, (2021) following a study on consumer perception of situational appropriateness for fresh, dehydrated, and fresh-cut fruits revealed that people preferred dehydrated fruits as an ingredient or as a healthy snack while fresh-cut fruits were picked for school lunch boxes or for immediate consumption.

According to Ajisola *et al.*, (2021), the main factors that influenced the consumer preference for processed citrus fruits are convenience, price, and nutritional content despite the belief among the majority that processed citrus may have negative inferences on health, suggesting why respondents preferred fresh citrus fruits to processed ones.

Sarfo *et al.*, (2023) who evaluated knowledge, attitude, and practices towards fruit and vegetable processing and consumption among rural women in East Africa revealed that a vast majority preferred minimally processed fruits and vegetables were good for the body. Among these rural women, 55% believed that highly processed fruits and vegetables were not good for the body. Among the respondents, 85% viewed that post-harvest losses of fruits or vegetables can be reduced by employing varied processing techniques and have shown interest in participating in training programmes on fruit and vegetable processing techniques. Further, most women indicated willingness to accept and consume newly processed fruit or vegetable products such as dried fruits and vegetables and fruit juices.

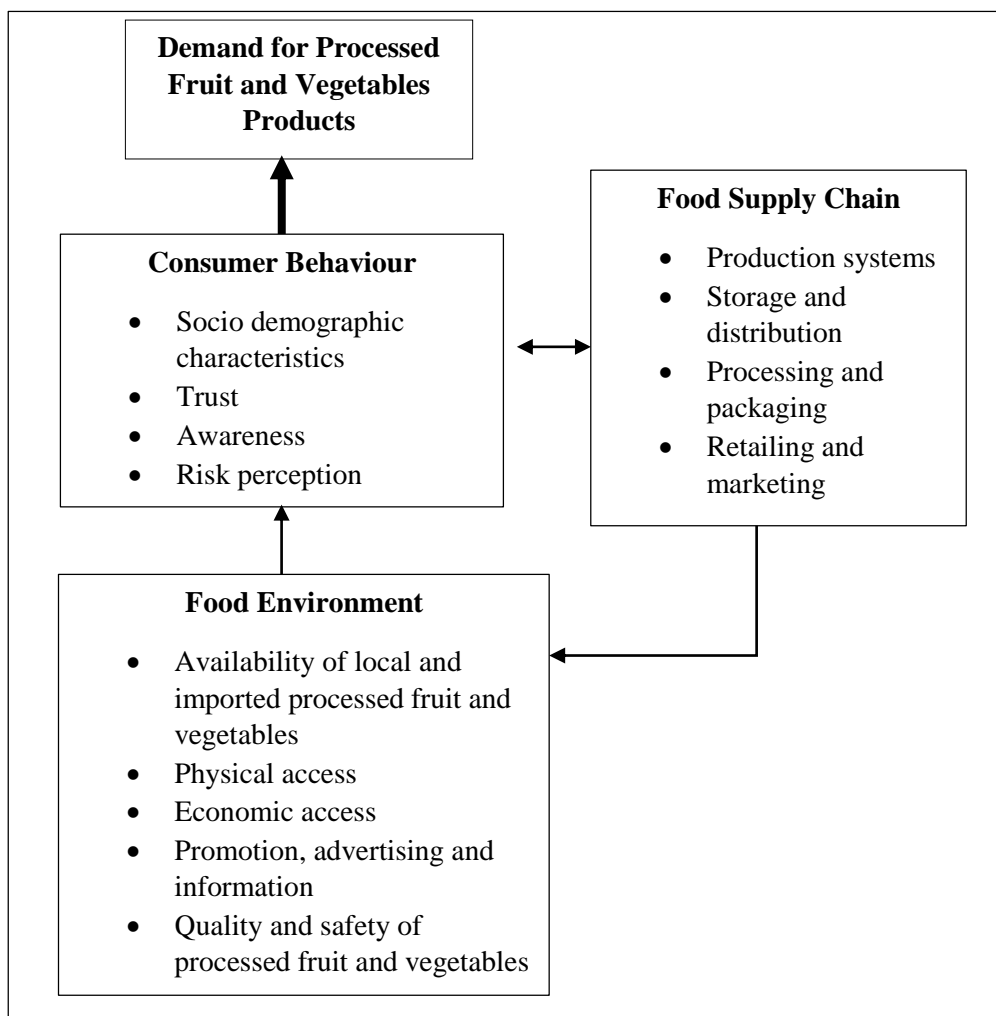
According to existing literature, worldwide consumption of processed fruits and vegetables has increased dramatically in recent years, a trend linked to intricate interactions among several factors that shape consumer preferences. Customers are searching for more convenient and nutrient-dense food products (Banadaranayake *et al.*, 2016; Ajisola *et al.*, 2021) since there is a discernible trend in the current environment towards healthier food options. Historical trends indicate a strong rise in customer demand for fruits and vegetables that have been lightly processed and are ready to eat (Sarfo *et al.*, 2023). This is related to both the hectic lifestyles of the modern world and the growing awareness of the health benefits of plant-based food products. Internationalization of the food industry has also facilitated the blending of diverse culinary traditions and preferences influencing a range of options available for consumption of processed fruits and vegetables. Urbanization, emphasis on sustainability, and growing disposable incomes have all impacted consumer preferences. People are becoming more conscious of how their food choices influence the environment, driving the demand for processed fruits and vegetables that are produced ethically and sustainably. The enduring nature of global buying habits shows the depth of innovation and adaptation the industry needs to meet the shifting consumer preferences. As stated by Moura and Vialta (2022), new consumer desires and prevailing trends will continue to drive the development of novel functional foods and cutting-edge food processing technologies. As a result, there are plenty of opportunities for innovation and the growth of the fruit and vegetable processing industry.

Existing literature provided significant evidences regarding the world consumption patterns and consumer perception towards processed fruit and vegetable products (Sijtsema *et al.*, 2012; Song *et al.*, 2020; Tarancon *et al.*, 2021; Ajisola *et al.*, 2021; Sarfo *et al.*, 2023). There is a limited number of studies conducted on consumer perceptions of processed fruit and vegetable in Sri Lanka. Only one study emphasized the processed fruit product availability and urban consumers' perception towards processed fruit consumption in Sri Lanka especially in the Kurunegala district (Bandaranayake *et al.*, 2016). However, no recent study can be found on consumers' perception towards processed fruit and vegetable products in Sri Lanka.

## **Methodology**

The mixed method approach including qualitative and quantitative techniques was applied for the study. The following conceptual framework was designed based on the existing literature (Hawassi, 2006; HLPE, 2017; Mekonnen, 2021) and to align with the objectives of the study (Figure 1). Consumption of processed fruits and vegetables is determined by the consumer preferences influenced by many interrelated factors such as the decision-making process, consumers' characteristics, food supply chains, and food environment (Hawassi, 2006; HLPE, 2017; Mekonnen, 2021). It was also assumed in the same figure that marketing systems have an important role to play in promoting consumption of processed fruit and vegetables. For this reason, factors such as prices of processed and fresh fruit and vegetables, availability of processed products, and frequency of promotion have significant impact on the consumption of processed fruit and vegetables. However, the effectiveness of the marketing systems to a greater extent depends on the processing potential in terms of quantity and quality of the products, product varieties, product form, and characteristics of the processed products.

Primary data were collected to perform both qualitative and quantitative analysis. Primary data were obtained by using pre-tested structured questionnaire surveys and key informant interviews. The questionnaire comprised of two sections: demographic characteristics and Likert items (five points) relevant to the 18 components, ranging from "strongly disagree" (SD), through "disagree" (D), "neutral" (N), "agree" (A), to "strongly agree" (SA). This study was conducted in the Colombo, Gampaha, and Kandy districts which have the highest urban population in Sri Lanka. Further, more than 80% of supermarkets and special outlets were located in aforementioned districts. In-depth interviews were conducted with selected traders (30) in order to find the available processed fruit and vegetable products in supermarkets and special outlets and their suggestions to further development of Sri Lankan processed fruit and vegetable industry. Purposive sampling was employed to select samples to interview traders. In parallel, a consumer survey was conducted by using pre-tested structured questionnaire with 384 urban households belonging to high and middle-income category. Multistage random sampling was applied to select consumers to obtain information relevant to the study.



Source: Authors own work adopted from (Hawassi,2006; HLPE, 2017; Mekonnen, 2021)

**Figure 1: Conceptual Framework**

The margin of error and confidence level for the credibility of information were 5% and 95% respectively. Primary data were collected regarding major processed fruit and vegetable products available in the markets, consumption patterns of processed fruit and vegetable products, frequency of consuming, reasons for processed fruit and vegetable consumption, buying behaviour, perceived barriers of consumers, contributory factors for household processed fruit and vegetable consumption, willingness to consume novel products. Descriptive statistics were conducted to examine the purchasing behaviour, consumption patterns, motives, and barriers of processed fruit and vegetable consumption of households. Further, Likert scale analysis was employed in analysis of consumer perceptions of processed fruit and vegetable attributes in decision-making in buying.

## **Results and Discussion**

About 172 local and 110 imported brands are available for processed fruit and vegetable in the surveyed supermarkets and special outlets. While 39 fruit species and 17 vegetable species are utilized in imported brands, a total of 47 fruit and 36 vegetable species has been used in locally processed fruit and vegetable brands.

**Table 1: Processed Fruit & Vegetable Availability in Domestic Market**

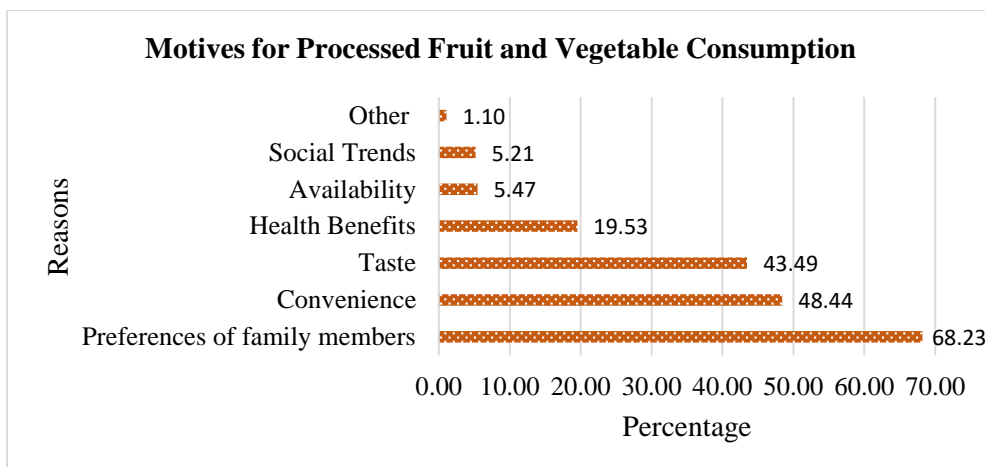
Imported Products (No.)	Brands	110
	Product types	Fruits - 26
		Vegetables - 27
	Varieties used	Fruits - 39
		Vegetables - 17
Importing regions	32	
Local Products (No.)	Brands	172
	Product types	Fruits - 27
		Vegetables - 36
	Varieties used	Fruits - 47
		Vegetables - 36

Source: HARTI Survey, 2023

Almost all traders sell their products to consumers while 30.00% of traders in the surveyed areas sell their products to retailers. However, a very few sell their products to hotels and restaurants. Seasonal variations in their customers' demand were noted by sample-processed fruit and vegetable dealers. The number of consumers has increased as a result of their customers' increased purchasing power, particularly in the months of April and December.

The study findings revealed that the majority (73.96%) of the surveyed consumers were female and nearly half of the respondents (47.14%) are 41-60 years old. The mean age of all the respondents is 53 years. A significant proportion of the sample consumers (43.23%) has passed the G.C.E. Advanced Level while 29.43% of the respondents have passed G.C.E. Ordinary Level. About 5.73% of the respondents have studied up to Grade 6-10 while very few studied up to Grade 1-5. However, 21.35% of the respondents have higher education qualifications such as diplomas, degrees, and masters.

Most of the respondents (83.85%) are in the category of 'other' in terms of occupation and it included the respondent status of retired, housewives, entrepreneurs, and business owners. Small proportion of the sample employees are in the private sector (8.59%) and government sector (7.55%).



Source: Authors' Compilation based on HARTI Survey, 2023

**Figure 2: Motives for Processed Fruit and Vegetable Consumption**

Respondents were asked to indicate the reasons for consuming processed fruit and vegetable products and multiple responses were also allowed (Figure 1). A majority (68.23%) of the surveyed consumers mentioned that 'preferences of family members' as the reason for consuming processed fruit and vegetable products while 48.44% of them indicated 'convenience' as the reason for consuming these products. It could be attributed to the busy lifestyle of urban consumers. Taste was also a significant factor as mentioned by 43.49% of respondents (Figure 2). About 19.53% consumed processed fruit and vegetable for health benefits. Therefore, the demand for and acceptance for processed fruit and vegetable products among urban consumers is likely to increase in the future.

Respondents were also asked to state how often they consumed different types of processed fruit and vegetable. The aim was to assess differences between consumption of various types of processed fruit and vegetable products accessible in Sri Lanka. According to the results, frequently consumed major processed fruit and vegetable products are sauce (58.59%) and jam (34.38%). A vast majority (98.76%) of the respondents consume tomato sauce often. Recently consumed major jams are mixed fruit (57.28%), strawberry (43.96%), wood apple (30.96%), mango (21.67%), and pineapple (10.22%). About 21 processed fruit and vegetable product types were recently consumed by the respondents. The number of fruit species used in processed forms in the descending order were, jam (18), chutney (16), RTS (Ready to Serve) drinks (15), dried snacks (15), Jelly (13), Pickle (13), Cordial (11), Nectar (10), Ice cream (8), fruit in syrup (7), yoghurt (6), yoghurt drinks (4), minimally cut (3), paste (2), canned (1), and pulp (1). The number of processed product types from different fruit species, in the descending order were, mango (*Mangifera indica*; 15), pineapple (*Ananas comosus*; 10), strawberry (*Fragaria x ananassa*; 10), wood apple (*Limonia acidissima*; 9), orange (*Citrus sinensis*; 8), papaya (*Carica papaya*; 7), mixed fruit (7), apple (*Malus domestica*; 6), passionfruit



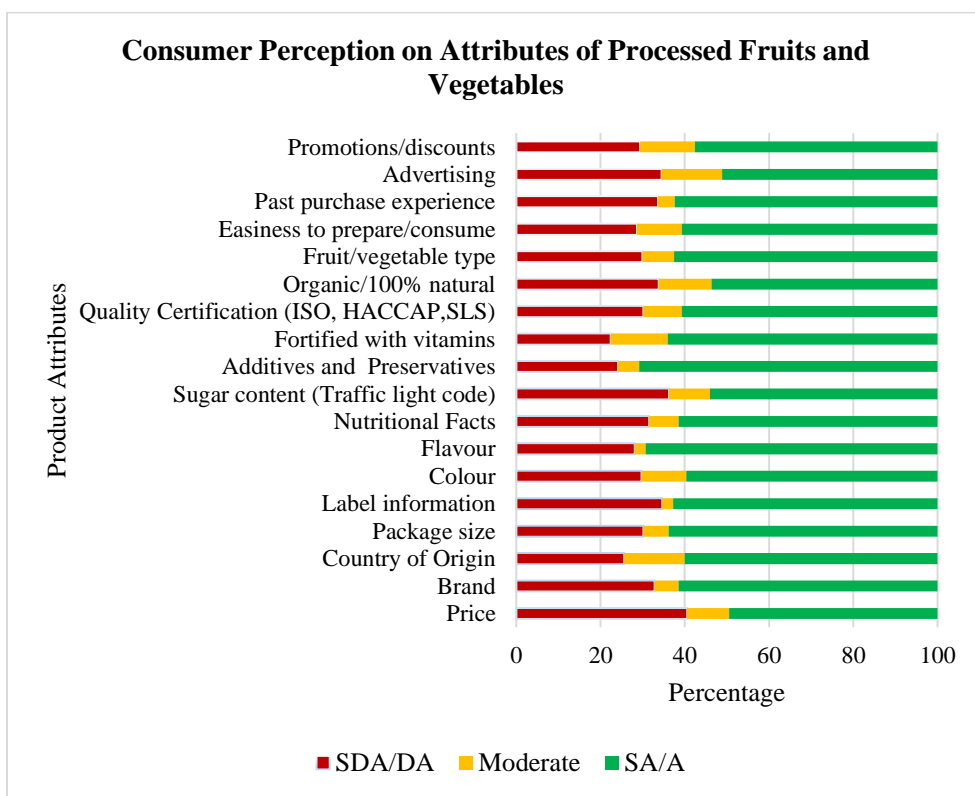
(*Passiflora edulis*; 5), watermelon (*Citrullus lanatus*; 5), guava (*Psidium guajava*; 4), nelli/Indian gooseberry (*Phyllanthus emblica*; 4), grapes (*Vitis vinifera*; 4), dates (*Phoenix dactylifera*; 4), lemon (*Citrus limon*; 3), raspberry (*Rubus idaeus*; 3), roseapple (*Syzygium jambos*; 3), ambarella (*Spondias dulcis*; 3), lime (*Citrus aurantifolia*; 2), lovi-lovi/batoko plum (*Flacourtia inermis* ; 2), starfruit (*Averrhoa carambola*; 2), bilimbi (*Averrhoa bilimbi*; 2), Ceylon olive (*Elaeocarpus serratus*; 2), banana (*Musa spp.* ; 2), plums (*Prunus domestica*; 2), mixed berry (2), apricot (*Prunus armeniaca*; 2), peach (*Prunus persica*; 2), cherry (*Prunus avium*; 2). Avocado (*Persea Americana*), pomegranate (*Punica granatum*), blackcurrant (*Ribes nigrum*), durian (*Durio zibethinus*), waraka/overripe jackfruit (*Artocarpus heterophyllus*), bael fruit (*Aegle marmelos*), olive (*Olea europaea*), goraka (*Garcinia quaesita*), and tamarind (*Tamarindus indica*) had one product each.

The number of vegetable species used in processed form in the descending order were, dried vegetables (9), pickle (7), soup (6), powder/flour (5), minimally cut (4), sauce (3), canned (2), puree (1), paste (1), jam (1), vegetables in brine (1), and RTS curries (1). The number of processed product types from different vegetable species, in the descending order were, young jackfruit (*Artocarpus heterophyllus*; 4), tomato (*Solanum lycopersicum*; 4), kos/ripe jackfruit (*Artocarpus heterophyllus*; 4), corn (*Zea mays*; 4), pumpkin (*Cucurbita pepo*; 3), green chilli (*Capsicum annuum L.*; 2), carrot (*Daucus carota*; 2), bean (*Phaseolus vulgaris*; 2), leeks (*Allium porrum*; 2), and cabbage (*Brassica oleracea*; 2). Nai miris/ bird chili (*Capsicum frutescens*), capsicum (*Capsicum annuum*), brinjal (*Solanum melongena*), moringa (*Moringa oleifera*), bitter gourd (*Momordica charantia*), breadfruit (*Artocarpus altilis*), mushroom (*Agaricus bisporus*), long bean (*Vigna unguiculata*), kohila (*Lasia spinosa*), ladies finger (*Abelmoschus esculentus*), ash plantain (*Musa paradisiaca*), rampe/pandan leaves (*Pandanus amaryllifolius*), curry leaves (*Murraya koenigii*), and green leafy vegetables had one product type each.

A large proportion (70.31%) of households in surveyed districts preferred locally processed fruit and vegetable products, suggesting that there is potential demand for these products. About 25.78% of the households preferred for both local and imported products. However, a small percentage of households (3.91%) expressed a preference for imported processed fruit and vegetable products only on the basis of their flavour and quality.

Respondents were asked to indicate their most preferred outlets for buying fruit and vegetable and multiple responses were also allowed. Vast majority of the households (84%) in surveyed districts preferred to buy processed fruit and vegetable from supermarkets while significant proportion of the population prepared (61%) some of the processed products such as jam, chutney, pickles, and sauce at their households. Nearly half of the population preferred to buy processed fruit and vegetable from retail shops. About 34% of the respondents consumed processed fruit and vegetable products which were received from relatives abroad. Only few respondents preferred to buy these products from other sources such as special outlets and fairs (*pola*).

When purchasing selected processed fruit and vegetable products, consumers’ main concern was on the following factors (Figure 3). Consumers were most concerned about additives and preservatives (70.83%) out of all the listed product features, and they were least concerned about the product's pricing (49.48%). Customer focused more on flavour (69.28%), fruit and vegetable species (62.50%), and colour (59.63%), as even, within a single product category, flavour and colour might vary depending on the species. The majority of the consumers are concerned about brand (61.46%) and country of origin (60.05%) as well. The product prices change based on the package size. Therefore, a high consumer attention was on the package size (63.8%). The majority (62.76%) of the consumers refer to the label information such as expiry date, nutritional composition, and quality standards when purchasing these type of food products.



Note: SDA=Strongly Disagree, DA= Disagree, SA= Strongly Agree and A=Agree

Source: Authors’ Compilation based on HARTI Survey, 2023

**Figure 3: Consumer Perception on Product Attributes**

Major factors that prevent households from purchasing some types of processed fruit and vegetable products are; 1) Beliefs of not suitable for some medical conditions such as diabetes (69.27%) and 2) Lack of safety due to addition of preservatives, artificial colours and flavours (66.93%). Family composition and preference of family members (36.98%)

influenced the respondents' buying decision of processed fruit and vegetable. High prices (26.04%) of processed fruit and vegetable products available in supermarkets and special outlets is also other reasons for preventing purchase of processed fruit and vegetable especially canned fruit and vegetable products. About 16.41% of the respondents are refrain from consuming some of the processed fruit and vegetable especially tomato sauce impacted by mass media and social media information. Few respondents indicated that they are not aware (7.29%) of some of the processed fruit and vegetable types such as jams (guava, papaya and banana), dehydrated products and vegetable powders/flour (Jack flour/hack seed powder) which are currently available in Sri Lanka. A small proportion of the population (1.82%) has negative perception on processed fruit and vegetable products. A very few respondents (1.56%) preferred fresh fruit and vegetable due to high availability while 1.30% of the respondents are preferred homemade processed fruit and vegetable products.

Respondents were asked to propose processed fruit and vegetable products which they are willing to buy in near future. However, only 81 persons responded. Majority (40.74%) of them proposed seasonal fruit and vegetable products including beverages, canned, and other while 24.69% of the respondents proposed dehydrated products (dried, snacks, seeds, and veggie mix). About 17.27% proposed confectionary items such as deserts, candy, short eats, and cookies while 9.88% of respondents suggested vegetable flour and powders. Consequently, a similar percentage of respondents (9.88%) proposed products which are made from underutilized fruits such as longan/*mora* (*Dimocarpus longan*), velvet tamarind/*gal siyambala* (*Dialium cochinchinense*), and lanzone/*gaduguda* (*Lansium domesticum*). About 8.64% of respondents who are health conscious proposed herbal products such as herbal tea bags, moringa capsule, and herbal powders. Jam, pickle, and chutneys which can be made from special fruits like bilimbi, lime, and raspberry were suggested by 7.41% of the respondents. Further, other products such as processed fruits, vegetable soup, wine, and mixed vegetable butter were suggested by 7.40% of the respondents.

According to the study findings, majority (55.62%) of the consumers suggested to ensure the quality and standards of the processed fruit and vegetable while 5% of the sample consumers proposed to increase the quality of the locally processed fruit and vegetable products. Processed products should be produced with low or no additives, preservatives, and artificial colours was suggested by 28.65% of the respondents. Also, few of the sample consumers prefer homemade processed fruit and vegetable products with natural ingredients. About 8.99% of the respondents suggested that it should be sold at a reasonable price. For instance, most of the respondents who are willing to buy processed fruit and vegetable, have refrained from purchasing these products due to high prices (26.04%). Increase in the production of healthy products with low sugar content and herbal ingredients (8.43%) was another suggestion made by consumers. About 3.93% of consumers suggested to launch a strong advertising campaign to increase the popularity and awareness of processed fruit and vegetable which are available in the market. Among

the suggestions: processed fruit and vegetable should be produced by using rare/wild fruit and vegetable species (2.25%), excess production during harvesting seasons should be converted to processed fruit and vegetable to reduce wastage (2.25%), novel products should be introduced (1.12%), and proper packaging materials should be used (1.12%). Few consumers emphasized that transportation and storage infrastructure should be enhanced in order to strengthen the processed fruit and vegetable value chains in the country. Especially, they said that cool room facilities should be established to reduce the wastage of fruits and vegetables. Very few emphasized the importance of locally processed fruit and vegetable exports.

### **Conclusion and Recommendations**

According to the majority of the surveyed consumers (68.23%), preference of family members was the main reason for consuming processed fruit and vegetable products. A considerable proportion, 48.44% also indicated 'convenience' as a reason for consuming processed fruit and vegetables possibly because of the busy lifestyle of urban consumers. Taste was also a contributory factor as mentioned by 43.49% of respondents. As stated by Bandaranayake *et al.*, (2016), convenience and taste were major reasons for processed fruit consumption in urban households. About 19.53% also considered health benefits for consuming processed fruit and vegetables. Therefore, the demand for processed fruits and vegetables may increase in the future because of high preference of urban consumers.

Awareness of processed fruit and vegetables among local consumers is inadequate and needs to be addressed further to enhance the processed fruit and vegetable industry. Beliefs such as not appropriate for certain medical conditions such as diabetes (69.27%), use of preservatives, additives, and colorants (66.93%) prevent households from buying certain products. Processers opting to produce food items with minimal or no additives, preservatives, and artificial colorants is a vital step as suggested by 28.65% of the respondents. Increasing the production of healthy products with low sugar content and herbal ingredients (8.43%) was another worthy suggestion made by consumers. Therefore, developing products with no or minimum levels of artificial compounds and low sugar content would promote processed fruit and vegetable consumption.

Further, majority (55.62%) of the consumers suggested to ensure the quality and standards of the processed fruit and vegetable products available in Sri Lanka. Therefore, quality assurance system should be established to maintain the quality of the processed products. In that sense quality assurance body should be established. Greater promotion of produce provenance, consumer education through a range of channels to create a shift in processed fruit and vegetable as per consumer preference, and relevant pricing of produce of various quality grades should be taken into account. Consumer awareness programmes and promotion campaigns with samples are recommended to popularize the locally processed fruit and vegetable products. Consequently, existing marketing strategies should be updated to promote locally produced processed fruit and vegetable products and innovations in fruit and vegetable processing as well as consumer-focused

product development are recommended. These strategies have the potential to enhance purchasing and consumption of processed fruit and vegetable in Sri Lanka, offering health, social, environmental, and economic benefits for consumers, food system actors, and the wider community. The traders believe the government's involvement in the processed fruit and vegetable industry is also important for enhancing Sri Lanka's processing infrastructure by reforming regulatory frameworks, addressing issues facing this industry, and introducing effective and stringent policies for developing the industry.

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