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3.0 CONSUMER'S ATTITUDE TOWARDS AFRICAN INDIGENOUS VEGETABLES IN MOSHI, TANZANIA

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Abstract

Numerous agri-food studies have been done to promote African Indigenous Vegetables (AIVs) with food security, nutritional benefits, and value chains being the focus. However, consumer behaviour on AIVs has been less studied thus creating a missing link in agri-food studies. This study investigates the consumer attitudes towards AIVs in Moshi Tanzania. Specifically, the study intended to identify the factors that influence consumer's purchase of AIVs, examine drivers for buying AIVs, and consumers' perceived benefits of AIVs. The Tricomponent Attitude Model was used to describe the interrelatedness of the three components: the cognitive, affective, and conative in developing sound marketing strategies for changing and consolidating consumer attitude towards a product for a superior market performance. About 130 sampled households in Moshi Municipal were involved in survey using a structured questionnaire. Consumer attitudes were measured using attitude scales and were analysed using descriptive analysis with the use of percentages, means, and overall mean of the key factors. It was found that the majority of households consume AIVs where Amaranth leaf, Nightshade leaf, and African eggplant are most frequently used AIVs. Consumers perceive AIVs as healthy, as having high nutritious value, and free from chemical fertilizers and pesticides. High nutritive qualities, environmentally friendly, and convenience were highly rated as consumer's drivers of buying AVIs. It is concluded that, consumers have a positive attitude towards AIVs. Investment on marketing communication and education on the relative health and economic importance of AIVs among consumers are the key recommendations of this study.

Key words: Consumer's Attitude, African Indigenous Vegetables (AIVs), and Tricomponent Attitude Model

1. INTRODUCTION

African Indigenous Vegetables (AIVs)[1] have attracted a growing concern as they play a very important role in addressing food security, essential nutrients, African diet, economy and their environmental friendliness (Mphafi *et al.,* 2019; Kansiime *et al.,* 2018). AIVs are considered as primary sources of food for many people. AIVs are cheap and easily accessible source of vitamins, particularly A, B, and C, and minerals such as calcium and iron as well as supplementary protein and calories (Muhanji *et al.,* 2011). This therefore makes AIVs a crucial component of traditional diets in sub-Saharan Africa (Vandebroek & Voeks, 2019).

Compared to other vegetables, marketing of AIVs is steadily increasing with a number of advantages in terms of reliable supply. They are also available at minimal cost (Muhanji, *et al.,* 2011; De Putter, *et al,* 2007). Economically, AIVs boost job opportunities and household incomes (Karanja, *et. al.,* 2011). The vegetables are marketed for income generation rather than used for subsistence purposes; thus, their market share and value are substantially increasing (Gido *et al.,* 2016; Ngungi *et al,* 2007). AIVs are considered prime contributors to farmers' household income by 13 per cent and farmers' market share by 88 per cent globally (Weinberger & Msuya, 2004). AIVs are easy to grow, as they require little external inputs, less capital requirement and little financial losses with no significant difference in gross profit between retailers of exotic and those of tradition leafy vegetables; thus, even resource-poor farmers and households can participate in the marketing of AIVs (Gido, *et, al.,* 2016).

Over the centuries, different types of AIVs have been consumed. The consumption of AIVs by various local communities in the country has been part of their cultural inheritance; however, with the introduction of exotic vegetables, consumers shifted their eating habits in favour of these exotic vegetables (Abukutsa-Onyango, *et, al.,* 2007). This resulted to an increased diminishing interest in the consumption of AIVs especially among the younger generations in the urban areas; furthermore, limited market transparency has led to weak vertical coordination of the supply chains and this has reduced the cultivation of IVs. There have been intensive efforts by researchers of promoting the consumption of AIVs (Musotsi *et al.,* 2017).

Studies (e.g. Mphafi, *et al.,* 2019; Kansiime, *et al.,* 2018; Muhanji, *et al.,* 2011; Karanja, *et. al.,* 2011; Abukutsa-Onyango, *et, al.,* 2007) have identified a number of benefits of AIVs including economic, nutritional, health, and agronomic. All these have stood at strong selling points for AIVs, and therefore facilitating transformation in the eating habits in favour of AIVs among consumers in local communities. However, the consumption of AIVs just like any other food item is influenced by many factors including its availability, accessibility and choice, which in turn may be influenced by geography, demography, disposable income, socio-economic status, urbanization, globalization, marketing, religion, culture, and consumer attitudes. For the sustainability of consumer's attitudes to be realized, more studies on consumer's purchase intentions, drivers for the purchase, the perceived benefits, and cultures of AIVs need to be done beyond the past and present approaches, which mainly focused on AIV's benefits in terms of food security, nutritional benefits, and value chains. In this light therefore, this paper examines consumer attitudes towards AIVs in Moshi Tanzania. Specifically, the study intended to identify

[1] We adopt the definition by Smith and Eyzaguirre (2007) who defined African Indigenous Vegetable (AIVs) as a crops species or varieties both indigenous and traditional vegetables that have been part of the food systems in Sub-Saharan Africa (SSA) for generations.

the factors that influence consumer's purchase of AIVs, examine drivers for buying AIVs, and consumers' perceived benefits of AIVs.

2. LITERATURE REVIEW

2.1 The Tricomponent Attitude Model

The model postulates that attitude comprises of three fundamental components which include cognitive, affective, and conative (Schiffman & Kanuk, 2010). The cognitive entails ones cognition or knowledge and perception about the object. It forms an information part of an attitude and it is expressed as a reflective belief (Kibera & Waruingi, 1998). Such cognition is a function of acquired direct experience by consumers on the perceived and the interrelatedness of knowledge sources on the object (Sowdagur, 2006). The knowledge and the perception take the form of belief; consumers in this sense believe that an object specific attributes and behaviour will bring about specific results. Consumers' belief in this category can be either informational or evaluative. Belief related to product attributes are informational, while those associated with product benefits are evaluative beliefs (Schiffman & Kanuk, 2010). The consumer's belief thus forms an integral part to marketers of AIVs for effective positioning of their products in a competitive landscape. AIVs marketers should therefore make aggressive use of market research to realize consumer's cognition and therefore maximise market potential.

The affective component of the model is built on consumers' feelings and emotions in line with a particular product or object (Schiffman, 2007; Botha, Brink and Machado, 1997). Affective responses or perceptions are very motivational in either a positive or negative direction as they can encourage or discourage the effect on the object/product depending on the nature of the thinking (Kardes, 2002; Sowdagur, 2006). As Schiffman and Kanuk (2010) stated, consumer's emotions or feelings about a product constitute the affective part of an attitude. Being evaluative in nature, the affective component normally captures personal or worldwide assessment of the attitude or object depending on favourableness and unfavourableness of the subject in question (Schiffman, 2007). To establish the overall feeling about a product or service, market researchers strive to identify the affective attitude of consumers by understanding the overall feeling on the likes and the dislikes of a particular product or object.

The conative component deals with the possibility of showing a particular behaviour with regards to an attitude-object (Schiffman & Kanuk, 2007). Schiffman *et al.*, (2007) maintain that the conative component is regarded as an expression of the consumer's intention to buy a certain brand for a particular purpose (Kibera & Waruingi, 1998). The intention to buy does not entail an actual buying due to confounding factors such as consumer's taste and preference for a substitute brand. The marketing implication is that to ensure market performance the knowledge of consumer's conative attitude towards a product is very important. However, these factors are subjective, they differ significantly, and it is difficult to have a full control on them.

For marketers of AIVs the tricomponent attitude offers useful insight on the study of consumer behaviour due to high level of internal consistency on the three components of consumer attitude. A marginal change in one attitude component induces change in others. Tricomponent attitude helps consumer researchers to develop and maintain effective strategies of accommodating and recognising the ever-changing consumer attitude towards a product as an essential ingredient for

successful market programme. This according to Blythe (1997) can only be achieved by evaluating and altering the current salient belief to make it more realistic and effective. Consequently, this integrates the three attitude components (cognitive, affective, and conative) into a holistic structure that results into a better understanding and predicting consumer behaviour. In this study, an attempt was made to discuss the attitudes of the AIVs consumers of Moshi, Tanzania within the scope of tricomponent attitude model.

2.2 Overview of African Indigenous Vegetables (AIVs)

African Indigenous Vegetables (IVs) have historically been consumed throughout the continent given its enormous range of species not only as a source of diet but also as a catalyst for socio-economic development (Weinberger & Pichop, 2009; Pasquini & Young, 2006; Grubben & Denton, 2004). They contribute abundantly in micronutrients and other related benefits to users, which include but not limited to high nutritive qualities in proteins, vitamins, oils, and micronutrients; they do not need many inputs such as fertilizers and pesticides; farmers keep their own seeds; they are easy to grow since they grow very fast. They are considered as a rich source of nutrients especially zinc and iron and are regarded as a source of income (Jacobi, *et, al.,* 1998). In addition, AIVs are adaptable to the local growing conditions; they are a major income generating activity and provide very important food security for poor-resource families in rural areas. Just like other vegetables, AIVs are mostly produced and consumed in cities; and Jacobi *et, al.,* (1998) observe, more than 90 percent of leafy vegetables supply in Dar es Salaam Tanzania is coming from production in the city itself.

2.3 AIVs markets in Tanzania

According to Osano (2010) and Eskola (2005), AIVs are generally sold through five different chains with varying characteristics. These include local village markets, regional markets, national market, export market, and supermarkets.

Table 1: Characteristics of AIVs Markets

	Local village Markets	Regional Markets	National Markets	Export Markets	Super Markets
Location	At Cross roads near villages	Region centres and/or district capitals	Dar es Salaam	Foreign	Large cities
Traders	Women and children	Large, medium and small traders	Large traders	Foreigners	Local and foreigners
Supply Products	Unreliable local/limited choice/low quantity	Regional / broad range / low to large quantity	Reliable	Reliable national / focused on special crops / large quantity	Reliable

Source: Adapted from Osano (2010) and Eskola (2005) and modified

3. METHODOLOGY

This study was carried out through descriptive research design. The target population for this study were consumers of AIVs in Moshi Municipal. Two research techniques were used: (i) A survey research technique; this involved 130 sampled consumers of AIVs in Moshi Tanzania whom were obtained using the formula by Fisher *et al*. (1991), and (ii) Qualitative research technique which involved an in-depth literature review from the global to Tanzania AIVs markets. The study adopted purposive and proportionate stratified sampling techniques. Consumers of AIVs were purposively sampled from both formal and informal vegetable markets in Moshi Tanzania. Proportionate stratified sampling technique was used by dividing the population into sub-groups based on sex, occupation, and income levels and then the simple random sampling was specifically employed in each stratum using the fish bowl method to select a representative sample. The study used structured questionnaire with fixed alternative questions to collect primary data. Theoretical part of the article significantly used secondary sources such as review of scholarly journals, books, research articles, reading materials, while quantitative findings and interpretations depended on primary data. Data were analysed descriptively through the help of Statistical Product and Service Solutions (SPSS) and presented in the form of percentage and mean.

4. FINDINGS AND DISCUSSIONS

4.1 Demographic Characteristics of Consumers

The respondents in this study were both males (40%) and females (60%). Their age ranged from 20 to 60 years, whose monthly income levels ranged from Tshs. 150, 000/= to in excess of Tshs. 3,000, 000/= (1US$ = Tshs. 2,327.00/=)[2]. The respondents included both those in the formal and those in self-employment.

Table 1: Demographic Characteristics of Consumers'

Category	Consumer's Demographic factor	Frequency (n=130)	Percent (%)
Age	**20 to 60 Years**	**130**	**100**
Sex	**Female**	**78**	**60**
	Male	**52**	**40**
Occupation	**Employed**	**65**	**50**
	Self –employment	**65**	**50**
Income Level (Monthly) (in Tshs).	**Below 150, 000**	**8**	**6**
	151, 000- 999, 000	**13**	**10**
	1, 000, 000- 1, 999, 000	**78**	**60**
	2000, 000-3, 000, 000	**26**	**20**
	Above 3, 000, 000	**5**	**4**

4.2 Consumers' Preference and Use of AIVs

Consumers were asked to rank different AIVs according to their preference and frequency of use. The ranking was from 1 (most used) to 10 (least used). The findings in Table 2 show that the top

[2] [https://www.bot.go.tz] Accessed 04/05/2020

three AIVs in the degree of impulse are amaranth leaf, Nightshade leaf, and African eggplant. This trend is largely attributed to their availability, regular supply in the market, affordability, and health benefits including richness in vitamins (Escola 2005). These findings are similar to the findings in a study by Weinberger and Pichop (2007) and IndigenoVeg survey data, (2007) that ranked amaranth *(Amaranthus spp.) as the* most important and frequently used AIVs in many urban and peri-urban areas in sub-Saharan Africa inclduing Tanzania. Amaranth *(Amaranthus spp.)* is followed by African nightshade (*solomun scabrum, S. villosum, S. nigrum, and S. amercanum),* African egg*p*lant *(Solamun scamacrocarpon, S. aethiopicus an S. canum),* vegetable cowpea *(Virgna enguiculata),* Ethiopian mustard *(Brassica carinata),* jute mallow *(Corchorus olitorius),* okra *(Abelmoschus esculentus),* spider plant *(cleome gynandra), and* pumpkin *(cucurbita moschata).*

Table 2: Consumer Preference Use of AIVs

S/No.	Common Name	Scientific Name	Swahili Name*	Mean	Rank
	African eggplant	*Solanum aethiopicum* (L.)*; S. macrocarpon* (L.)	*Nyanya chungu, ngogwe*	2.86	3
	Amaranth leaf	Amaranthus spp.	Mchicha	3.42	1
	Cassava leaf	*Manihot esculenta* (Crantz)*; M. glaziovii* (Mull. Arg.)	*Kisamvu*	2.83	4
	Cowpea leaf	*Vigna unguiculata* (L.) Walp)	*Kunde*	1.96	8
	Ethiopian mustard leaf	*Brassica carinata* (A. Braun)	*Sukuma wiki*	2.76	6
	Ipomea leaf	*Ipomea batata* (L.)	*Matembele*	2.80	5
	Nightshade leaf	*Solanum scabrum* (Mill.) *S. villosum* (Mill.) *S. americanum* (Mill.)	*Mnavu*	3.10	2
	Okra	*Abelmoschus esculentus* (L.) Moench.	*Bamia*	2.65	7
	Spiderflower leaf	*Cleome gynandra*	*Mgagani*	1.60	10
	Squash leaf	*Cucurbita pepo* (L.)	*Maboga*	1.66	9

***Swahili is the National language of Tanzania; it is also used in other East African countries like Kenya, Uganda, Rwanda, Burundi, and Congo Democratic Republic.**

4.3 Areas where consumers' often buy AIVs and characteristics of consumer markets

The respondents were asked to indicate as to where they often purchase AIVs. The findings in Figure 1 indicate that 8 percent of the respondents said that AIVs are sold at super market, 20 percent cited street vendors, 16 percent indicated farm gates, and 36 percent indicated informal markets, 12 percent green grocers, and 8 percent indicated intermediaries (collectors, brokers, transporters). This indicates that most of the consumers buy AIVs from informal markets as is shown in Figure 1. These informal markets are found in the village and regional markets dominated by small traders mostly women. In the village markets, the supply is unreliable, low in quantity, and limited in choice. Regional markets have broad range of varieties and large quantities that widen consumers' choice. Marketers of AIVs in the supermarkets and intermediaries should make strong marketing communication to make consumers aware of the existence of AIVs in their markets where percentage of awareness is low.

As for *Farm gates,* AIVs are sold by farmers at their farm-gates. The prices realized here according to Sanga, Ngailo and Kazungu (2013) do not include transport and marketing costs thus making them cheaper than in the other markets. Sellers at farm gates are characterised by low level of education, low technical knowledge of AIVs (Pichop, 2007), poor-resource farmers,

disorganized, and are operating under semi commercially oriented basis; they lack inputs and skills necessary to meet the dynamic market requirements. According to Ngugi, Gitau, and Nyoro (2006) this pushes them away from accessing high value markets such as supermarkets and therefore ending up being exploited by the intermediaries.

Furthermore, Intermediaries perform different and specific activities along the chain and are in such categories as collectors, brokers, wholesalers, and transporters. Collectors on the one hand are engaged in pooling activities and gathering vegetables from small producers into quantities large enough to satisfy wholesalers' demand. They are often, but not always commissioned by wholesalers (Weinberger and Pichop, 2009). Brokers on the other hand identify price differentials along the market. They normally buy IVs where prices are low and sell them where prices are high and through this, they earn a profit. As for wholesalers, they are the main suppliers in urban and peri-urban areas and who have sourced the produce from production areas and markets. Transporters or farmers normally hire a pick-up that delivers the produce from the collection point in the locality of the farmers to the supermarkets. The costs to the transporter includes fuel and lubricants, rent or bribing traffic police, and City council charges thus making a margin which is not accounting for depreciation of the vehicle (Ngugi, et al., 2006).

Street vendors include those who sell on the streets, or at the traditional market places in the villages or in towns. According to Weinberger and Pichop (2009), the bulk of the retailers comprises of wet market vendors, hawkers, and street vendors. This displays a typical African public market setting, where the produce is displayed either on a counter or a stall or on the floor. Unlike other members of the AIVs supply chain, actors in the retail markets are generally younger with low level of education.

Supermarkets usually give guidelines on the quality and quantity required to furnish the increasing demand for indigenous vegetables. Visual inspection is used to assess the desired quality. According to Ngugi, *et al*, (2006), supermarket gives orders with quality specifications, failure to which the products are rejected. In this case, the quality standards set by the supermarkets are that the vegetable units be clean, neat, not attacked by insects (no holes), right length (between 12 and 18 inches), right quantities (weighing between 500 and 700 grams), harvested before they flower or develop seeds and fresh (not wilted), and be delivered between 6.00am-7.00am on the day of delivery. Some supermarkets procure IVs via their subsidiary companies while other from producer organizations (farmer-groups) and from preferred individuals who supply consistently and in large quantities and all these are paid on delivery and not in advance (Ibid, *et al.,* 2006).

Green Grocers are located around the cities; they buy directly from the indigenous vegetables' farmer-groups at the prices, which are the same as in the supermarkets. Experience from Nairobi shows that the buying price is US$ 0.23 per Kg and the grocers sell the same at US$ 0.34, this makes a US$ 0.11 margin (Ngugi, *et al.,* 2006). In selling to green grocers, indigenous vegetable farmers face the challenge of receiving smaller order quantities as opposed to what they get from the supermarkets.

Informal markets are mostly on the outskirts of the cities. They sell to traders-cum-wholesalers who then sell to consumers. Farmer groups rarely sell their vegetables to the informal markets. Nevertheless, these too do not buy as large quantities as is the case with the supermarkets (Ngugi, *et al.,* 2006).

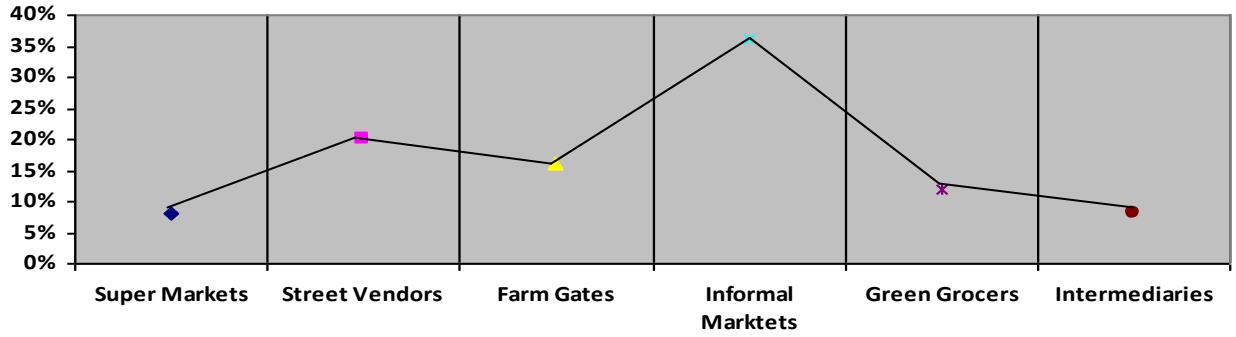

Figure 1: Areas where AIVs are often sold

4.4 Family Buying Unity and Degree of Impulse

Findings in Table 3 indicate that 62.3 percent of the respondents reported that the one who is responsible for buying AIVs in the family is the mother; 12.3 percent mention the father as the one responsible for buying AIVs. About 16.2 percent said that other members of the family are responsible and 9.2 percent said that both mother and father are responsible for buying AIVs in the family. Thus, based on African traditions, mothers are the ones who mostly buy foodstuffs, as are the ones who are more involved in making sure that the children have good health. Thus, mothers should get a special training on the importance of these vegetables so that they can keep on buying and convincing their families to consume AIVS always. This therefore calls for increasing awareness of AIVs among women, as they constitute a significant part of food buying unit at a household level. This observation is in line with the observation made by Schiffman and Kanuk (2007) that, the conative component (in the tricomponent attitude model) shows the consumers intention to buy AIVs is in line with the needs and interests of the family members.

In order to understand consumers' degree of impulse (frequency of buying), respondents were asked to indicate the frequency of buying AIVs. The findings in Table 3 show that majority (60%) buys AIVs between 5 and 7 times during the week. Another 25.4 and 10 percent buy AIVs once to twice a week respectively. At the extreme end, about 4.6 percent buy AIVs once a month. This indicates that AIVs are consumed on daily basis by the majority of the households in Moshi. Therefore, this trend explains its dietary and economic importance along the chain from producers to consumers in Moshi. This refers to the affective component of the tricomponent model that the frequency of buying AIVs is attached to the affective perceptions that are highly motivational in encouraging frequent purchase as commented by Sowdgur (2006).

Table 3: AIVs Family Buying Units

Variable	Category	Frequency (n = 130)	Percent (%)
Responsible in buying	Mother	81	62.3
	Father	16	12.3
	Both	12	9.2
	Other family members	21	16.2

Frequency of buying	5-7 times a week	78	60.0
	2-3 times a week	13	10.0
	1-2 times a week	33	25.4
	Once in a moth	6	4.6

4.5 Attributes of African Indigenous Vegetables (AIVs)

The other area of interest was finding out how consumers perceive AIVs nutritional value. The findings indicated that about 79 percent of the respondents strongly agreed and 18 percent agreed that AIVs had high nutritional value. Only 2 percent of the respondents seemed indifferent (table 4). These indicated that more consumers strongly agreed with the attribute that AIVs are healthy. This implies that consumers understand the importance of AIVs but most of them fail to buy AIVs. Consumer's idea about AIVs being free from chemicals, fertilizer, and pesticides that would either encourage or discourage them from purchasing these vegetables was also a concern of this study. The findings in Table 4 point out that about 88.2 percent of the respondents strongly agreed and 11.8 percent agreed that AIVs were free from chemicals, fertilizer, and pesticides. This indicates that more consumers strongly agreed that AIVs have high nutritional value. It was also revealed that 16 percent of the respondents strongly agreed, 48 percent agreed, and 36 percent were neutral that AIVs are produced in a more environmentally friendly way. The implication of this observation is that people consider AIVs as a part of their daily diet as are very nutritional, free from chemical fertilizers, pesticides and are produced in a an environmentally friendly way.

Table 4: Attributes of African Indigenous Vegetables

Attribute	Percentage (%) of responses in 5 Likert Scale					Mean
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
AIVs have high nutritional value	79.4%	17.6%	2.0 %	1%	0%	4.75
AIVs are free from chemical fertilizers, and pesticides	88.5%	11.5%	0%	0%	0%	4.88
AIVs are produced in a more environmentally friendly way	16%	48%	36%	0%	0%	3.8

4.6 Rating the drivers for the purchase of AIVs

The study also intended to understand factors that influence the purchase of AIVs. The study rated these factors as most important (5points), important (3 points), and less important (1 point). It is very important to understand factors that influence consumers' intention of purchasing AIVs. The various weights were multiplied by the number of respondents who gave a particular rate and then divided by the total number of respondents to get the weighted mean. The expected mean was the weight of 3 points, which of course is the weight, allocated for important rate. The findings in Table 5 indicate that all the drivers for the purchase of AVIs had a mean value above the expected mean (3 points). High nutritive qualities had the highest mean value of 4.44, followed by environmental friendliness and then conveniences each with 4.11 while, price and tradition prestige had the lowest mean of 3.8. This signifies that, all the five factors were viewed

as more than important influencing factors of AIVs consumers buying decisions. However, high nutritional quality was found to be a highly influencing factor for the purchase of AIVs (at a mean of 4.44) than was the case with the other factors. The marketing implication for this is that, consumers have a positive attitude towards AIVs as they have high nutritive qualities and that there is a link between cognitive and conative components of the tricomponent model. From the cognitive component, consumers have acquired direct experience of AIVs as a source of nutrients through regular consumption. The conative component is more of intention to buy a certain brand for a given purpose. Consumers in this study have displayed a great need of purchasing AIVs with the intention of accessing high nutrition in the diet.

Table 5: Rating the drivers for buying AIVs

Factors influencing purchase of AIVs	Very Important	Important	Not Important	Total	Mean Weight
Weight	5	3	1		
Price	335	189	-	524	4.03
High nutritive qualities	470	108	-	578	4.44
Environmental friendly	480	54	-	534	4.11
Conveniences	405	120	9	534	4.11
Tradition prestigious	335	189	-	524	4.03

4.7 Consumer's perceived benefits of AIVs

The study findings in Table 6 indicate that about 52.9 percent of the respondents strongly agreed, 35.3 percent agreed, 5.9 percent were neutral and about 5.9 percent strongly disagreed that AIVs are sold at cheap prices. This shows only few percentage of consumers are after the importance of this vegetables, as they are not limited by the price even if it is high. In addition, to determine whether consumers buy AIVs if the household income is high, the question was set, and the findings indicated that about 8.8 percent of respondents strongly agreed, 32.4 percent agreed, 17.4 percent were neutral that the households would buy AIVs even if their prices were high. On the other hand, 8.8 percent of the respondents strongly disagreed, 29.4 percent disagreed, and about 2.9% said, they did not know whether would buy AIVs even if their prices were high. This also show that the income of the family matters in deciding whether to buy or not to buy the vegetables.

To understand accessibility of AIVs in the market, the question was set, and the results show that about 58.8percent of the respondents strongly agreed, 32.4% agreed, 2.9% of respondents were

neutral, 2.9% strongly disagreed, and about 2.9 percent of the respondents disagreed that accessibility of AIVs in the market influenced customers' decision of buying the vegetables. Therefore, the producers need to produce in high quantity so that they can be as much as possible available in the market.

In addition, to assess whether consumers buy AIVs when they have better appearance, a question was set, and the findings indicated that about 47.1percent of the respondents strongly agreed, 23.5 percent agreed, 23.5 percent were neutral, and 5.9 percent disagreed that better appearance was a factor influencing consumers' decision of buying AIVs. These findings indicate that most of the consumers purchase AIVs when they are cheaply priced, when consumers have more household income, when AIVs are more accessible in the market, and when AIVS have better appearance,

as it indicated in Table 6. The implication of this is that consumers do not know the importance of AIVs in their body so education should be provided to consumers that AIVs are the most important part of their daily food.

As far as the implication on health is concerned, the findings in Table 6 indicate that 79.4 percent of the sampled respondents strongly agreed 17.6 percent agreed, and 2.9 percent were neutral that AIVs are good for health. Likewise, about 42.1 percent of the respondents strongly agreed, 22.5 percent agreed, and 21.5 percent were neutral that AIVs are free from diseases. On the other hand, 7 percent disagreed and 6.9 percent strongly disagreed that AIVs are free from diseases. In the same way, 47.1 percent of respondents strongly agreed, 23.5 percent agreed, 23.5 percent were neutral, and 5.9 percent strongly disagreed that AIVs have body immunity. Overall, with a

mean of 4.05 it was observed that consumers were aware of the perceived benefits of consuming AIVs. This observation reveals that the benefits associated with the use of AIVs as explained by the cognitive component of the tricomponent attitude model are subjective and depend on the knowledge and perception of the consumer.

Table 6: Consumer's perceived benefits of AIVs

Consumer's perceived benefits of AIVs	Percentage (%) of responses in 5 Likert Scale					Mean
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
AIVs taste good	28.7	49	22.3	0	0	4.06
AIVs More cheap price	52.9	35.3	5.9	5.9	0	4.35
More disposable household income	8.8	35.6	17.4	8.8	29.4	2.85
AIVs are easily accessible in the market	58.8	32.5	2.9	2.9	2.9	4.4
AIVs are good for health	79.4	17.6	2.9	0	0	4.76
AIVs are free from diseases	42.1	22.5	21.5	7	6.9	3.86
AIVs Increases body immunity	47.1	23.5	23.5	0	5.9	4.07

4.8 Overall mean of the key factors

The first factor is Consumer Use of AIVs; this had the lowest mean score of 2.56 than the overall mean score of 3.81. This means consumers were not aware of most of the indigenous vegetables in the market where the top three AIVs in the degree of impulse were amaranth leaf, Nightshade leaf, and African eggplant. Consumers' idea about African Indigenous Vegetables was the second factor and it had the highest mean score of 4.47. This demonstrates that consumers were aware of

AIVs and therefore there is a great possibility of consuming the products very efficiently. The third factor was factors influencing consumers' decisions to purchase AIVs and this had a mean score of 4.14, which is greater than the average mean value of 3.81 as all the variables in that factor rated higher than the mean value.

It was very important to know factors that were of priority to consumers when buying these vegetables. In this case, nutritive qualities, environmentally friendly, conveniences, price and tradition prestige were considered as important in influencing consumers decisions of buying AIVs. The final factor was consumers' perceived benefits of AIVs, which had a mean score of 4.05, which was also greater than the average, mean value of 3.81. This implies that all the

variables in that factor were rated higher mean value; this means that consumers perceive AIVs as having a lot of benefits as they think that they taste good, sold at cheaper price, good for health, free from diseases, increase body immunity, and leave them with more disposable income. The fact that all the overall mean value are higher than the average mean value, signifies that consumers in Tanzania have a positive attitude towards AIVs. From the findings, it was revealed that, while the affective and conative components of the tricomponent model reflect the frequency of buying AIVs, the cognitive component deals with the benefits and experience associated with the use of AIVs as a source of nutrients through regular consumption. Further, the conative component is more of intention to buy AIVs by the consumers for a high nutrition in the diet. This triangular relationship between the cognitive, affective, and conative components shows the viability of the tricomponent attitude model in influencing consumer's attitudes toward AIVs.

Table 7: Overall mean of the key factors

Factors	Overall mean value
Consumer Use of AIVs	2.56
Attribute of AIVs	4.47
Factors influence consumers' decisions to purchase AIVs	4.14
Consumer's perceived benefits of AIVs	4.05
Average Mean Value	**3.81**

5. CONCLUSION AND RECOMMENDATIONS

This paper examined consumer attitudes towards AIVs in Moshi, Tanzania. More specifically it looks at consumer's awareness and use of AIVs, attributes of AIVs, drivers for buying AIVs, and consumers' perceived benefits of AIVs. The Tricomponent Attitude Model was also used in this study to explain the relevance and interrelatedness of the three components: the cognitive, affective and the conative that consumer researchers blend to develop viable marketing strategies for changing and consolidating consumer attitude towards a product as may well be required for a superior market performance. The study therefore concludes that consumers consider AIVs as having many benefits. The overall integration of the three components signifies that consumers in Tanzania have a positive attitude towards AIVs. This scenario therefore substantiates the need for tricomponent attitude model in studies related to consumer behaviour.

The study thus recommends to the Ministry of Agriculture Food and Cooperatives, the Ministry of Health, Community Development Gender, the Elderly and Children through Local Authorities and other stakeholders to invest more one educating local communities on the relative health importance of AIVs as a livelihood strategy and consider them as the most important part of their daily food. This study also the recommends that, people should consider AIVs as part of their daily food and should be consumed daily, as they are very nutritional, free from chemical fertilizers, pesticides and are produced in a more environmentally friendly way. Finally, to producers and traders in the AIVs value chain there is a need for strong marketing communication to enhance consumers' awareness of the existence of AIVs in other markets with low knowledge and understanding of these vegetables.

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