BERJAYA Journal of Services & Management
ISSN : 2289-568X
Vol. 4, July 2015, 16 - 21

CUSTOMER PERCEPTION TOWARD SALTED SEA GRAPE TASTE: A PRELIMINARY QUALITATIVE STUDY

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ABSTRACT

Chlorophyta as one of the major breeds of sea grape grows in the tropical areas of the China Sea, Indian and Pacific Oceans. This plant can be used as one the affordable source of minerals, vitamin A, C, and several essential unsaturated fatty acids. This study developed a qualitative method to test the acceptability of this product in Malaysia market. For this purpose, 30 participants were invited to sampling lab of Berjaya University College of Hospitality. The sea grapes mixed with sea salt and chilled in 0-2 C^o for 30 days. The result of taste test indicated that overall participants consider this product as an acceptable product with a potential market at affordable price.

Keywords: *Sea grapes, product testing, customer perceptions.*

INTRODUCTION

Seaweed is amazing marine plant which grows in many locations and in different shape. Seaweed always has an important role in marine ecosystem. Seaweed typically giving its underwater ecosystem much more than it receives. Seaweed has different breeds however, it can usually be found in three different colours; red, green, and brown (Misheer et al., 2006). The scientific classification of each colour is Rhodophyta (red), Ochrophyt (brown), and Chlorophyta (green).

Chlorophyta as one of the major breeds of sea grape grows in the tropical areas of the China Sea, Indian and Pacific Oceans. In Asia, Chlorophyta is mainly available in east Malaysia (Sabah and Sarawak), Indonesia, Philippines, Thailand, Vietnam, Japan, and Papua New Guinea (Misheer et al., 2006; Paul et al., 2014).

Chlorophyta is one of edible seaweed species due to its soft, tender, and juicy texture. Chlorophyta address as sea grapes in many countries as it has shape like grape and Japanese see it like fish eggs and call "green caviar". Chlorophyta looks like bunches of little fresh grapes. Chlorophyta can be found with different colour ranges such as bright green, olive green and bluish depend on environment and sea water temperature. The plants are small and branches are erected. The grape-like tiny spherical beads are tightly packed together on vertical stems to form a pepper like shape, which arise from long horizontal stems that creep over the ocean floor or cultivated like grapes on stings (Paul et al., 2014).

The sea grape resembles bunches of little grapes. Each 'grape' is tiny (0.1-0.2cm) usually spherical on a stalk. The 'grapes' are usually tightly packed on a vertical 'stem', often forming a sausage-like shape (2-10cm long). This species is distinguished by the distinct constriction where the 'grape' attaches to the stalk (Wolf et al., 1985). These bunches of 'grapes' emerge from a long horizontal 'stem' that creeps over the surface. Colours range from bright green to bluish and olive green.

Sea grape grows quite well in a variety of environments, usually on substrate composed of coral rubble or rocks to over 20 meters deep, but also common in shallow, muddy lagoons. It is generally found on sandy to musty substrates on reef flats that are not exposed during low tides and where the water is generally calm (Wolf et al., 1985). It may form extensive beds or meadows in exceptionally good habitats. Sea grape is stenohaline and cannot thrive in areas where salinity is less than 25%. Salinities lower than 30% would already result in crop loss. Growth of natural stocks in habitats where water becomes brackish during the rainy season, or those cultured in ponds, is highly seasonal. Sea grape cannot survive in fresh water.

Sea grape is high in minerals, vitamin A, C, and several essential unsaturated fatty acids. It is also reported to have antibacterial and antifungal properties, and to be used to treat high blood pressure and rheumatism (Tabarsa et al., 2012). Due to hygiene vegetables, rich of vitamins, minerals, fewer calories and strange tastes, sea grape have been recognized and used as favourite products in Japan. In the Philippines, the sea grape is eaten fresh as a salad, or dried and salted so it can be eaten later. It is exported to Japan from the Philippines and Vietnam. It is also eaten in Malaysia and Indonesia.

Sea grape has created waves in the international food market because of its high nutritional value. It is a popular form of delicacy in Japan and Philippines, and is said by some to be an upcoming popular product in the seafood industry. This species is also used as food for livestock and aquaculture fish. However, the preliminary study by us showed that participants do not like the sea grape when we serve it raw (unprocessed) and consider it to smelly and taste like raw fish. Thus, we have tried to process the sea grape and test whether participants have intention to purchase the process sea grape.

Figure 1: Removing Sea Grapes from Branches

METHODOLOGY AND RECIPE

Sea grape is usually eaten raw with vinegar, as a snack or in a salad. In the Philippines (east of Sabah) after being washed in clean water, it is usually eaten raw as a salad, mixed with chopped raw onions and fresh tomatoes, and dressed with a blend of fish sauce or fish paste and vinegar. It is known to be rich in iodine. For the purpose of this research the fresh sea grape from east Malaysia (Sabah state) was processed. Each grape divided manually from sea grape stalk by paper knife and cleaned by pure and cold water (see figure 1). Then grapes folded with 2% French sea salt (Fleur de sel "flower of salt" in French) and kept in chillier at 0 - 2 C^o for 10 - 30 days. After that 30 days salting a 6 months chilled shelf life are established.

Fleur de sel, sea salt has more mineral complexity than common table salt enhancing the sea grape sea taste (Drake and Drake, 2011). Fleur de Sel contains magnesium, iron, calcium and other beneficial trace elements and some people detect that it has a light floral (fleur) odour. Typical uses of this salt include sprinkling on meats, seasoning seafood, brine to wash oyster or rounding the taste of sweets.

The processed salted sea grape was served with sour cream, shopped onion, horseradish, black pepper and lemon. For this purpose 20 persons of biochemists to gourmets has been invited to test the recipe and rate it for ; appearance, taste, firmness, freshness, possibility of using sea grape as cooking ingredient, market suitability, and their intention to purchase the processed sea grapes at RM10 (USD 3) for 50gr.

RESULTS AND DISCUSSION

The results of the sampling tests show that 15 persons or 75% of participants are agreeable to purchase 50 gr of sea grapes for RM10. However, another 25% are not willing to purchase this ingredient. This result shows that majority of participants are willing to purchase sea grape and consider it worth for the money. The mean for the acceptability of appearance is 7.6 out of 10. Majority of participants agree that this recipe has appealing and acceptable appearance. Participants that have shown interest to purchase the product, rate (in average) this product for appearance 8/10 in contrast to the participants that do not agree to buy the product by the mean of 6.2/10.

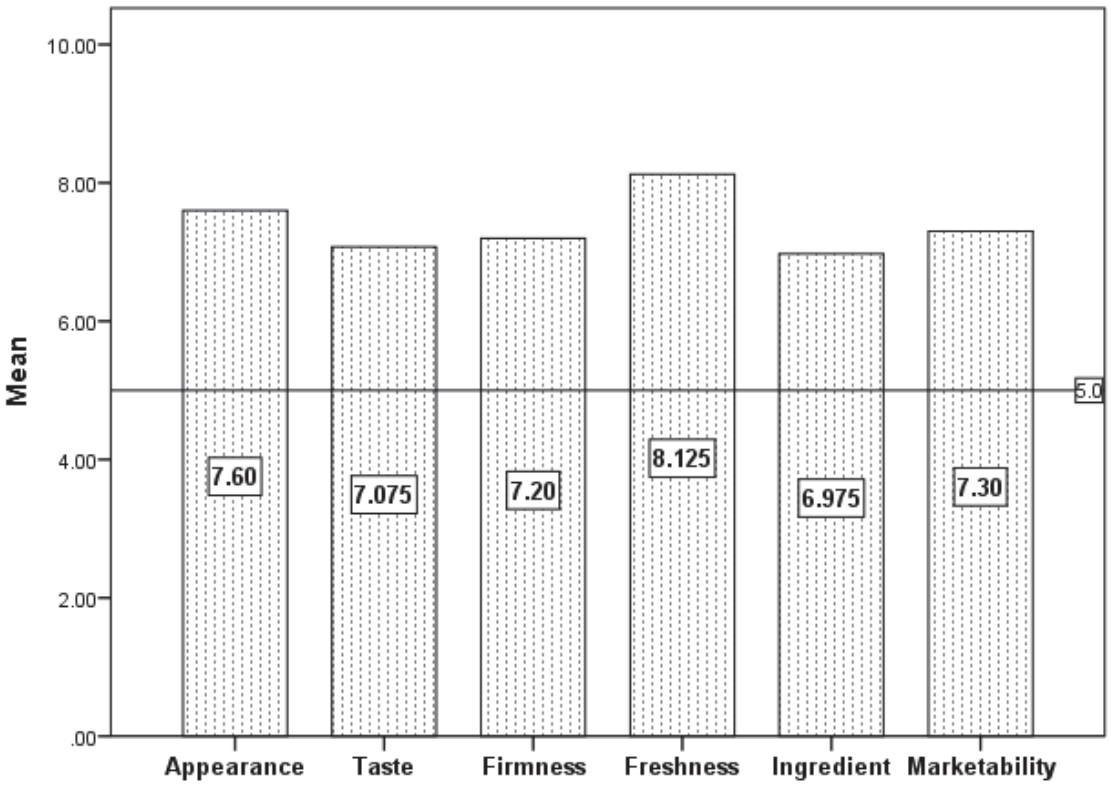

Figure 2: Over perception of participants

Taste is one of the major indicator to purchase any particular food receives the lowest (5.3/10) rate among other factors from the participants who say that they will not purchase this product. However, it received fairly high rate from the participants who feel the product is worth for money (7.7/10). This result shows that the taste of salted sea grape is not very acceptable or at least familiar for all participants and some even commented that the taste is too strong and feel like drinking sea water.

Table 1: Mean of Participants' Rate

Factors	**Mean of Participants' Rate**	
	Yes	No
Appearance	8.1	6.2
Taste	7.7	5.3
Firmness	7.7	5.6
Freshness	8.5	6.9
Ingredient	7.1	6.5
Marketability	7.7	6.2

The next factor that has been rated by the participants is firmness of the sea grape. Firmness of food can be evaluated by the maximum force required to compress the food between the teeth. The average from potential purchasers is 7.3/10 which is higher in comparison with non-intend purchasers (5.6/10). Firmness received the third highest rate from the participants who feel the product is worth for money and second lowest after test from non-intended participants.

Freshness of sea grape is the next factor that participants have rated accordingly. The result shows that the freshness received the highest rate among other factors for both intended and non-intended participants. The participant with intention to purchase this product consider this product very fresh (8.5/10) and acceptable. The rate from non-intend participants is also fairly high (6.9/10). It shows almost all participants agree with freshness of salted sea grapes.

The average for the question that whether participants are going to use sea grape as an ingredient is close (7.1/10 and 6.5/10). It reveals that both groups consider sea grape as a potential ingredient and find it suitable to be used as a part of menu. This factor is very important as the rate of acceptance of any new recipes can be increase if chefs try to promote it as an ingredient for their recipes. Last question asked about the marketability of the sea grape from the participant point of view. The results show that the average of intended participants is 7.7/10 compare to 6.2/10 for non-intended participants.

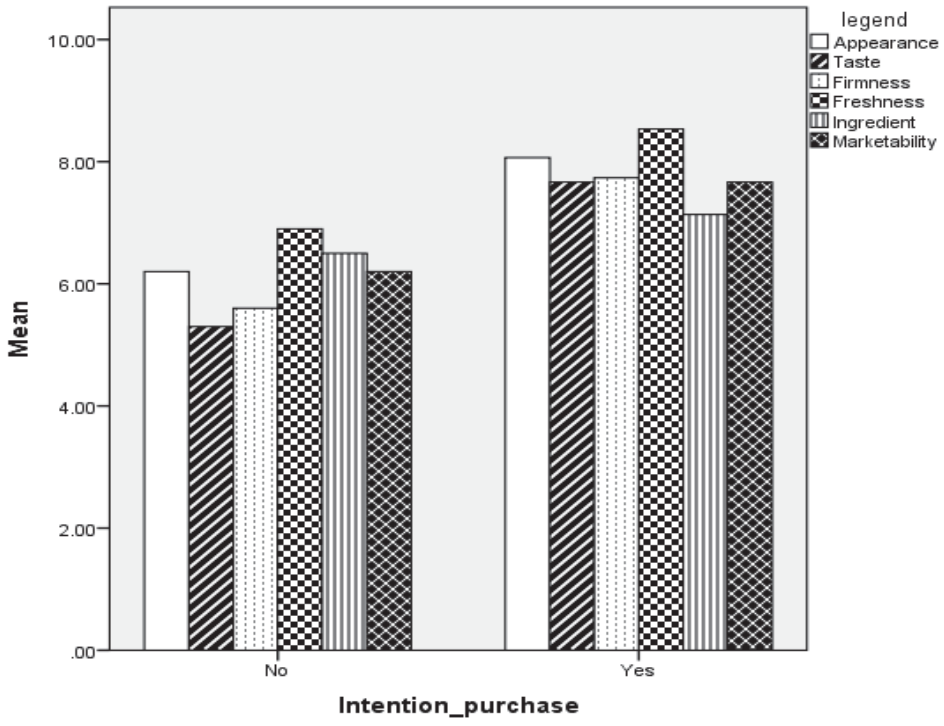

Figure 3: Intention to Purchase

CONCLUSION

Overall, the results of this study indicate that participants have a positive perception toward this products and majority of them show interest to purchase processed sea grape if it can be available with an acceptable and affordable price. The above results show that there is a potential market for this product and more research is needed to understand the more holistic perspective of customer perception toward this product.

The current findings should be used by considering the limitation of this study. The number of participants of this study is not sufficient enough to generalize the finding of this study to the whole entire market. Therefore, it is advisable future studies to develop quantitative methodology to include more participants in the study. Moreover, it is advisable that further studies develop different recipes (for examples; salads etc.) by sea grape to test the taste perception of customers toward the recipes than sea grape per se.

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