

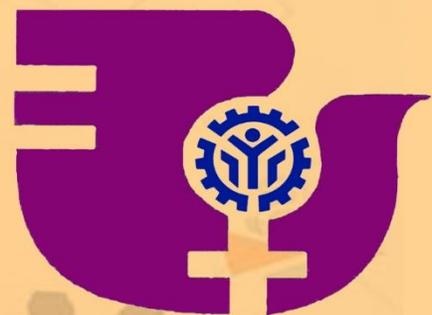


TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
TESDA Complex, East Service Road, South Superhighway, Taguig City

DEVELOPMENT OF SALAD DRESSING USING LOCAL VINERGARS

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EXECUTIVE SUMMARY

This research study aimed at developing salad dressing, specifically vinaigrettes using vinegars from the Philippines.

The trainer and the trainees of Cookery NC II have observed that salad dressings prepared in most restaurants make use of vinegars imported from other countries such as balsamic or apple cider. Bottled salad dressings from local manufacturers also utilize the same ingredients. This led them to determine the possibility of using vinegars produced in the country as an ingredient in salad dressings.

The conceptual framework utilized was the Product Development framework, a systematic, commercially oriented research to develop products and processes satisfying a known or suspected consumer need. The Cookery NC II qualification spearheaded the product development process. Factors considered in the product development included aroma, flavor, acidity, consistency and general acceptability.

After the initial idea generation, screening and development of three product samples using Paombong, tuba and Iloko vinegars all mixed with sunflower oil, product test was with a controlled group consisted of thirty-one (31) trainees. An evaluation sheet using the nine-point hedonic scale was prepared for the conduct of testing to establish the overall preference and acceptability with the products from the respondents.

The results of the product tests showed that two of the vinaigrettes, specifically using tuba and Iloko vinegars have high degrees of preferences. More than 65% of the respondents favored the milder taste and balanced flavor of the two dressings. pH levels of the vinegars and the vinaigrettes were measured as well and these confirm the result of the product test.

Based on the results, it was concluded that the vinaigrette Tuba with sunflower oil and vinaigrette Iloko with sunflower oil are viable products as salad dressings. The taste are distinctly Filipino and can be used on regular salad greens as a more affordable option. The general quality was acceptable and satisfied the needs of the intended consumers. Recommendations were the production and sales of the vinaigrette at TESDA Women's Center. Likewise, the conduct of a feasibility study to determine the viability of commercializing the product in bottled packaging was suggested.



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INTRODUCTION

Background of the Study

Filipinos are eating less vegetables and fruits over the last three decades. Data from the 2015 report of the Food and Nutrition Research Institute (FNRI) showed that the mean per capita intake of vegetables in the Philippines was 123 grams. This is significantly lower than the 1978 report that showed 145 grams mean per capita intake of vegetables, the highest score for the 37-year study (Food and Nutrition Research Institute, 2015). The current figure is even significantly lower than the recommended combined per capita intakes of fruits and vegetable by the World Health Organization (WHO) of 400 grams. This can be attributed to consumption patterns of Filipinos and perception towards fruits and vegetables.

Despite the government's efforts to spread information on the positive effects of consuming vegetables and fruits towards good health, barriers continue to exist on both demand and consumption. A study conducted by FNRI cited increasing price in vegetables and contamination from pesticides as reasons for the decline in demand of vegetables among Filipino households (Tawid News Team, 2013). In terms of vegetable consumption, Filipino adolescents stated the following factors as barriers: dislike in taste, mushy texture, easily spoiled, time-consuming preparation and unattractiveness of vegetables as food (Josefina Taguinod Gonzales, 2016). This prevalence of low fruit and vegetable consumption leads to malnutrition including micronutrient deficiency.

Studies have shown that regular intake of vegetables and fruits may prevent non-communicable diseases such as heart disease, cancer, diabetes and obesity. The decreasing trend in consumption of this type of food suggest there is a gap in the diet of Filipinos (Gavilan, 2015) This implies a need for studies that focus on improving the taste and convenience of preparing vegetables.

On the other hand, demand for high value vegetables, including salad vegetables is steadily increasing in urban areas (S.B. Concepcion, 2017). This is partly attributed to



increasing incomes and the shift towards supermarkets instead of traditional wet markets in purchasing produce. Moreover, wealthier Filipinos prefer to consume their vegetables while dining out. Restaurants usually offer on their menu fresh salads drizzled with dressing made from imported oils and vinegars. Those in the lower income segment need not spend their income on such expensive and hard to find ingredients in order to prepare fresh salads and increase their intake of salad greens. This study aims to address this gap by developing a salad dressing made from local vinegar.

Statement of the Problem

The TESDA Women's Center envisions to be the lead TVET institution of excellence in empowering Filipino Women. One of the qualifications offered at TWC is Cookery NC II which produces skilled workers for the hotel and restaurant industry. Among the core competencies taught in the qualification is Prepare Salads and Dressings. Both the trainer and the trainees have observed that salad dressings prepared in most restaurants make use of vinegars imported from other countries such as balsamic or apple cider. Bottled salad dressings from local manufacturers also utilize the same ingredients. This led them to determine the possibility of using vinegars produced in the country as an ingredient in salad dressings.

TWC has had a long history of support to the national government's programs in addressing the malnutrition problem in the country, including the development of affordable vegetable-based snack food recipes for grade school and high school students. This research is aligned on this context focusing on a different age demographic.



Objectives of the Study

This technology research attempted to develop a salad dressing using local vinegars as an alternative product for the market. Local vinegars are affordable, convenient to purchase and are familiar to Filipinos' taste buds, making it easier to prepare and serve dressings and in effect, vegetables as well. This research employed the New Product Development (NPD) process as a model.

The objectives of this research are the following:

1. To develop salad dressing using local vinegars (e.g. sukang Iloko, Paombong, sukang tuba);
2. To determine product cost and acceptability; and
3. To determine health benefits of the developed product.

Scope and Delimitation

The research was focused on the development of salad dressing using local ingredients, which are available in the country. Acceptability of the product developed was determined by conducting product test survey with 31 trainees and 8 staff of TWC, Taguig City.

Both quantitative and qualitative data were gathered. Quantitative data were obtained from the results of the consumer survey and evaluations conducted with the respondents. Qualitative data were gathered also from the group discussion and feedbacks of participants during the product testing. The conduct of consumer survey was limited to 39 participants because of limited number of available respondents.



CONCEPTUAL FRAMEWORK

Review of Related Literature

This study is about the development of local salad dressing using vinegar or “*suka*” as it is known in the Philippines, is one of the most used ingredients in the Filipino kitchen.

Salad dressings have a long history, dating back to ancient times. The Babylonians used oil and vinegar for dressing greens nearly 2,000 years ago. Egyptians favored a salad dressed with oil, vinegar and Asian spices. Mayonnaise was first used as dressing in France 200 years ago (The Association for Dressings & sauces, 2017).

Salads were favorites in the great courts of European Monarchs. Royal chefs often combined as many as 35 ingredients in one enormous salad bowl and included exotic green ingredients such flower petals. Royalties preferred a tossed mixture of new potatoes (boiled and diced), sardines and herb dressing or boiled celery root diced and tossed with lettuce, creamy mustard dressing, truffles, chervil and hard-cooked egg slices.

In the twentieth century, Americans began using basic dressing ingredients including oil, vinegar or lemon juice, and spices to create an infinite variety of dressings to complement salads. Prepared dressings were largely unavailable until the turn of the century. Until then, home chefs had to start from scratch. Due to variations in ingredients, partly because of lacking storage conditions and year-round supply source), results varied significantly. Gradually, restaurants began packaging and selling their consistent dressings product to customers, and the salad dressing industry began.

The word “vinaigrette” which originated as a diminutive form of French vinaigre (vinegar), was first used in English as long ago as 1699 and become established by the



end of the nineteenth century. The dressing is a cold sauce made from a mixture of vinegar oil, pepper, and salt, to which various flavorings may be added. Vinaigrette is used especially for dressing green salads. It is considered to be a typically French sauce and is often called "French dressing" in Britain. In order to make a vinaigrette, use 2 - 3 parts of good oil, to 1-part vinegar(Kitchen Project, 2017).

The most common additions are mustard, shallots or onions, and herbs like basil, dill, or parsley. Dijon mustard is also used as a natural emulsifier to make the sauce creamy without using a thickener. The most common oils to use are olive and Canola. Extra Virgin Olive Oil is the oil skimmed off the top of fresh crushed olives. It is light and fruity. Extra virgin olive oil is very mild in flavor. Canola is made from the rapeseed and is very light in flavor and texture. Both Olive oil and Canola have a high amount of what is called "Good Fats" which are monosaturated fats. On the other hand, a number of vinegars are used in preparing vinaigrette dressings. These are Apple Cider Vinegar, White Wine Vinegar, Red Wine Vinegar, Rice Wine Vinegar, Balsamic Vinegar, Sherry Wine Vinegar, and Champagne Vinegar.

Among the local food producers, variations of vinaigrettes have appeared on the market. From Dizon farms there are Japanese vinaigrette dressing, dalandan vinaigrette dressing tamarind vinaigrette dressing and mangosteen balsamic vinaigrette(Dizon Farms, 2017). Gourmet Farms offer Balsamic Vinaigrette which is slightly sweet and tangy(Aspiras, 2012). However, all commercially available vinaigrette dressings are based on balsamic vinegar which implies that none have used locally produced vinegars. An opportunity to test the viability of using one to develop a new salad dressing is therefore raised.



Conceptual Framework

Product and Process Development (commonly referred to as Product Development) is systematic, commercially oriented research to develop products and processes satisfying a known or suspected consumer need. Product development is a method of industrial research in its own right. It is a combination and application of natural sciences with the social sciences into one type of integrated research whose aim is the development of new products. The most widely referenced normative product development models are those of Booz, Allen and Hamilton Inc. (1982) and that of Cooper and Kleinschmidt (1986). There are essentially four basic stages in these models for every product development process. These are:

- product strategy development;
- product design and development;
- product commercialization;
- product launch and post-launch.

Each stage has activities that produce outcomes (information) upon which management decisions are made. In practice, some of the activities performed in the product development process can be truncated, or some stages can be omitted or avoided based on a company's accumulated knowledge and experience. Having defined product development, it is now necessary to examine the issue of what constitutes a new or innovative product. Newness of a product may be judged differently according to those who perceive it. In the context of consumer goods such as clothing, there are three groups of actors: consumers, distributors, and producers. Each may have a different view of whether or not a product is new.

Crucial to the discussion of product development is to recognize that "innovation" is contextual. The consumers' perception of product newness depends on the location of the consumer and the types of clothing currently on the market.



The challenge for product development is to develop a product, which is acceptable to the target consumer. The specific flavors, ingredients and levels of spiciness, sweetness used in foods are significantly some of the factors that target customers are concerned about.

A major feature that distinguishes food product development is the ethical considerations of producing a large volume of safe and healthy food for human consumption. This is coupled to the fact that food raw materials are available at all times, affordable and are easy to prepare.

New Product Development Process

Idea Generation

Basic survey questionnaire are utilized in this process to identify the needs of the intended clients and describe the problems that might occur when these needs are not addressed. Ideas from other members of the organization are also generated as a significant part of this process that will take on affordability, accessibility and other specifics of the product development.

Idea Screening

This step is crucial to ensure that unsuitable ideas, for whatever reason are rejected as soon as possible. Ideas are considered objectively; ideally by a group or committee focusing mainly on the needs of the intended clients as a result of the survey done. Shortlists of ideas were documented.

Concept Development and Testing

Once the ideas have passed the screening stage, a small group discussion is conducted. The idea is now a concept, with enough in-depth information that the consumer can visualize it. A sample of the products is pre-tested by the group.



Aside from patent research, design due diligence, and other legalities involved with new product development, knowing where the product will be work best - who are the consumer? How will the consumer accept the new product? Do they really want or need it? This stage will be a chance to develop the concept further.

Product Development

In this process, the trainer involved used various raw materials for product development. Number of products were produced and presented initially to a small group.

Product Testing (Internal Clients)

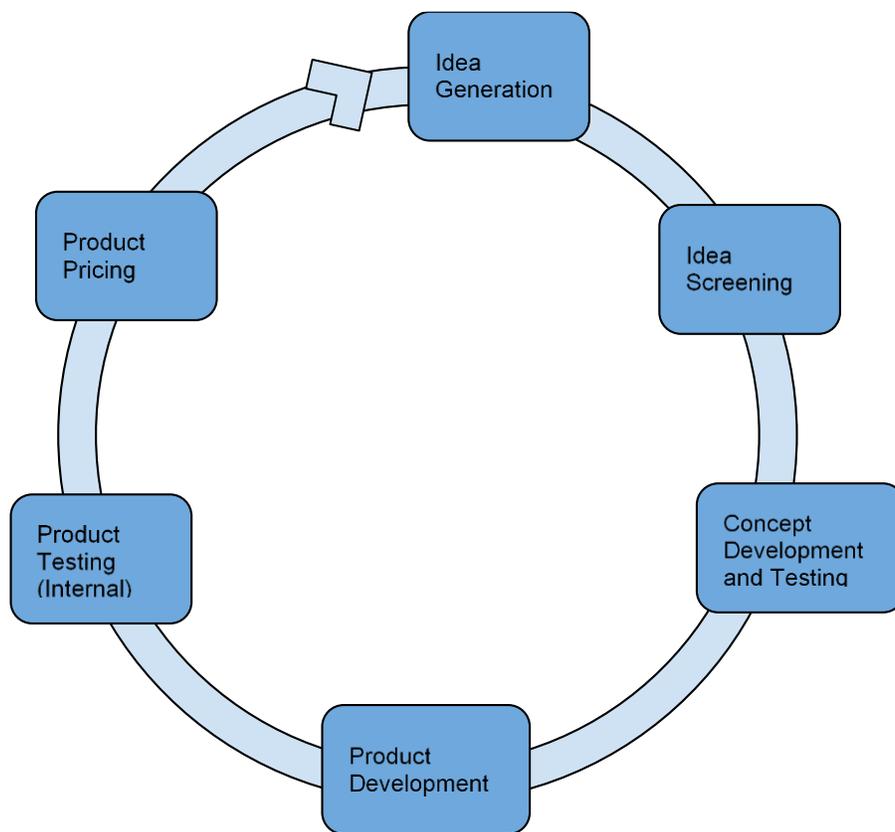
Product testing were participated by selected members of TWC staff and trainees. This process aims to gather feedbacks on the sensory attributes of the salad dressings.

Product Pricing

At this stage, new product developed have gone mainstream. Once the consumers are purchasing the products, it should be at a reasonable cost.



Figure 1. Conceptual Framework of New Product Development



Definition of Terms

Dressing

Dressings are sometimes considered as cold sauces because they give flavor, moisture, moisture and enrich the salad. It could be in the form of liquid or semi-liquid. Some salad dressings have sour cream, yogurt and fruit juices as their main ingredients. But most salad dressings have oil and acid as the primary ingredients and to modify its flavor and texture, other ingredients are added. A salad dressing with vinegar used as an acidic ingredient is called vinaigrette. Emulsion is the result of blending acid and oil and other ingredients, but after a short time, the oil and the acid will separate. There are various acids to use when preparing a salad dressing. From vinegar, fruit juices to malted barley and other similar acidic liquids. Some use of mayonnaise which is also made of acid from either fruit juice or vinegar, egg yolk and oil instead of fruit juice or plain vinegar as primary ingredients for salad dressing.

Sukang Tuba (Coconut Sap Vinegar)

Filipino Coconut Sap Vinegar is made from the fermented sap of a coconut tree. Extraction of this sap is similar to that of Nipa Palm sap, except sans the kicking—the inflorescence of the coconut tree is simply tapped for its sap and then fermented. Fresh coconut sap is known as Tuba, and then it is called Sukang Tuba once it is fermented into vinegar. Sukang Tuba is also cloudy in appearance, with a slightly sweet smell. Despite its origins, there is no actual coconut smell or flavor in this vinegar, though it is rather smooth tasting on its own and not as lip-puckering as the Palm Vinegar.

Sukang Paombong (Nipa Palm Vinegar)

Filipino Palm Vinegar is made from the fermented sap of the Nipa Palm and is perhaps the most used vinegar in the Philippines. It is also named for the region of the Philippines that is known for its Palm Vinegar—Paombong. Sukang Paombong is cloudy in appearance and has a sort of lemony/citrusy flavor note to it.



Sukang Iloco (Ilocano Cane Vinegar)

Filipino Cane Vinegar from the Ilocos region of the Philippines is a by-product of Ilocano Sugar Cane Wine known as Basi. Basi is made by pressing the sugar cane, cooking the cane juice to a molasses state, then placing the molasses in clay jars. The bark from the Duhat (Java Plum) tree is then added to the clay jars as a flavorant and fermenting agent. The molasses first turns into the Basi wine but if left to ferment longer and sour, the Basi then transforms to Sukang Iloco. Sukang Iloco (also spelled Iloko) is deep amber in color. Sukang Iloco is somewhat mellow in flavor, though it does have a hint of sweetness to it.

Apple Cider Vinegar

Perhaps the most widely talked-about in the vinegar world lately, cider vinegar is lauded endlessly it seems for its unique health benefits and versatile sweet-sour flavor. That aside, it is a great mainstay for any cooking application. Slightly sweet from the fermented apple juice, apple cider vinegar makes a great quick pickling liquid, and is a great addition to autumn cider braises, where the vinegar kick helps tone down the sweetness of roasted vegetables.

Balsamic vinegar

Italian balsamic vinegar is made in either Reggio Emilia or Modena, Italy, from a reduction of cooked grape must (the pressings of juice that includes the skins, seeds, and stems), and can be aged for any number of years, but traditionally at least 12. The longer it is aged, the more deeply rich and thick the vinegar becomes.



METHODOLOGY

Idea Generation and Screening

The experimental stage comprised formulation of recipes and proportions of ingredient. The research team was composed of the TESDA Women Center (TWC) trainer in Cookery NC II who led the conduct of the research. The TWC Center Chief provided technical guidance in the research design and methodology while the team of TWC Research provided assistance in the conduct of consumer survey and technical writing. Some selected TWC Cookery trainees participated also as part of the research team in the conduct of experiments on recipe modification, costing and consumer testing to encourage them and experience the conduct of research.

The general idea was to develop a local salad dressing- meaning the product does not have to taste completely like the common vinaigrette made from balsamic vinegar and olive oil but to identify a dressing with its own unique attributes that will be acceptable to consumers.

Concept Development and Product Development

After looking at all available salad dressings in the market, the research team then developed the recipe of the product. This was led by the Cookery NC II trainer. An important consideration in the concept and product development was the kind of vinegars to test. After a number of discussions, three local vinegars were identified to be used in the recipe: sukang tuba, sukang iloko, sukang paombong. The three were chosen based on each vinegar's distinct taste and the availability in the market in order to avoid price and resource constraints.

Likewise, another consideration was the oil used for mixture. The research team decided to use sunflower oil instead of olive oil. The reasons for choosing this are the



price of sunflower oil is less expensive than extra virgin olive oil and the product is readily available in supermarkets. After the determination of the main ingredients, the amount per ingredient was determined following the basic recipe for vinaigrettes. The recipes of the three vinaigrettes are shown in Annex 1. Food safety practices were carefully observed during the entire experimental and formulation stage.



Sensory Evaluation and Respondents of the Study

The next step involved was conducting food tasting with a controlled group consisted of thirty-one (31) trainees. An evaluation sheet using the nine point hedonic scale (Annex 2) was devised for the conduct of taste testing of the salad dressing food samples to establish the overall preference and acceptance of vinaigrettes from the panelists. The evaluators wrote the number (1-9) corresponding to the appropriate rating scale to express their feeling of how much they liked or disliked the product.

Product Testing

The product evaluation was conducted on December 19, 2017 at TWC, Taguig City. Three (3) members of the research team facilitated the survey with assistance from the Cookery trainees. After the preparation and cooking of the sample food products by the TWC trainer and trainees in Cookery, a brief orientation was conducted on the purpose of the activity. Initially, the names of the sample food products were not revealed yet, but it was just labeled as Product 211, Product 217 and Product 277. The sample food products were then prepared and served. The products were tasted individually and simultaneously. Bottled drinking water and lemon slices were also distributed to help the respondents distinguish the taste of one food sample after the other. Feedback regarding the general comments were gathered from the trainees through the survey form after the taste testing.







Photos from the Product Test with TWC Trainees

Nutritional Analysis

The food samples with high preference and acceptability were analyzed for its nutritional value. Freshly prepared samples were tested to determine the pH or acidity.

Product Costing

Product costing of each of the three vinaigrette samples was computed to determine its affordability and compare the cost with the prices products in the market.

RESULTS AND DISCUSSION, CONCLUSION AND RECOMMENDATION

Recipe Formulation/Development of Salad Dressing Using Local Vinegars and Results of Product Evaluation

The three recipes for salad dressings were produced by the research team and were subjected for testing with thirty-one (31) respondents. The survey was conducted to determine the over-all acceptability and which among the 3 recipes of the salad dressing using local vinegars was the most preferred by the trainees of TWC.

Tables 1 and 2 show the profile of respondents who participated in the product testing. There were more female respondents (77.42%) compared to male (22.58%) with age ranging from 18 to 67 years old. More than 40% of the respondents belong to the 18-27 age group while one fourth of the respondents are aged 28-37.

Table 1. Profile of Students by Sex

Sex	Frequency	%
M	7	22.58%
F	24	77.42%

Table 2. Profile of Students by Age

Age Range	Frequency	%
18-27	13	41.94
28-37	8	25.81
38-47	6	19.35
48-57	1	3.23
58-67	3	9.68
Total	31	100.0



Table 3 shows the results of evaluation of the prototype for welding head cap with replaceable mask that was tried by the research team in terms of percentage (%) of responses in liking of the respondents/panelists.

Table 3. Percentage (%) Liking of Panelists by Product

Description of Preference	% General Acceptability		
	Vinaigrette Paombong with Sunflower Oil	Vinaigrette Tuba with Sunflower Oil	Vinaigrette Iloko with Sunflower Oil
1-Dislike extremely	0.00%	0.00%	0.00%
2-Dislike very much	6.45%	0.00%	0.00%
3-Dislike moderately	3.23%	9.68%	6.45%
4-Dislike Slightly	16.13%	9.68%	3.23%
5-Neither like nor dislike	12.90%	12.90%	25.81%
6-Like Slightly	22.58%	12.90%	3.23%
7-Like Moderately	29.03%	19.35%	22.58%
8-Like Very Much	6.45%	19.35%	19.35%
9-Like extremely	3.23%	16.13%	19.35%

The 9-point hedonic scale of liking was considered as the most appropriate to use in this study because of its usefulness in planning and choosing the right recipe. Foods that were liked by the panelists were selected while those that were disliked could be removed. The goal here was not to compare the comparative degree of liking between foods but merely to register whether a food under study was liked well enough to remain on the list of recipes. The judgments were more absolute than comparative.

It can be inferred from Table 3 that the respondents both the vinaigrette tuba with sunflower oil and vinaigrette Iloko with sunflower oil were more liked as compared to the vinaigrette Paombong. Analyzing the scale, the salad dressing with the more positive acceptability is the vinaigrette tuba with 67.74% of ranking from like slightly to like extremely. On the other hand, while vinaigrette Iloko registered a 64.52% of positive responses, more than a quarter (25.82%) of the respondents were neutral on the general acceptability of the product. This means that a significant number of



respondents are ambivalent on their preference in using vinaigrette Iloko with sunflower oil. The figure is significant as well when compared to only 12.90% of respondents rating “neither like nor dislike” for the vinaigrette tuba with sunflower oil.



The general comments of the panelists and photos taken during the conduct of the product test are presented below.

Vinaigrette Paombong with Sunflower Oil	Vinaigrette tuba with Sunflower Oil	Vinaigrette Iloko with Sunflower Oil
<ul style="list-style-type: none"> • Masarap, maasim lang • Bitter taste but better aroma • I don't like the smell, the taste is okay • Masyado ma-acid, nag-iwan ng magaspang sa dila • The smell is not acceptable • Mas maasim kaysa iba; mas maganda ang taste • Strong aroma of vinegar • Good taste, smells bad • Good taste but strong sour smell • Mataas ang acidity • Mas mabango, tama lang acidity at consistency • Too much sour taste • Acidity smell is strong • Sweet in taste, likeable • Good in taste but more acidity • Very high in acid content 	<ul style="list-style-type: none"> • Mas masarap • Has better taste, balanced dressing • Masarap hindi masyadong maasim tama lang lasa • The sourness of it has some sweetness • Like very much • The taste is mild • Mas masarap kasi hindi sya masyado kaasiman at tama lang ang lasa • Gusto ko tama lang ang lasa hindi masyado maasim • Mas masarap sa bibig • No aroma • Good combination of taste and aroma • Mild lang • Taste bland • Mild or moderate in taste and smell • Tasted the acidity lightly • Good and mild taste • Very light; I like it very much 	<ul style="list-style-type: none"> • Slight acid • Same taste as Paombong • Overpowered by the greens • Smells a bit sour; the taste is better than the second one • Has the right acidity and aroma • Too oily • Very good taste but needs a little bit of acidity • Parang walang lasa • Taste good • Mixture of oil and vinegar is balance • Combination of mild vinegar and less acid in taste and smell • Tasted acidity but it is likeable and tasty • Not so good in aroma • Like it very much but still less acidity

Nutritional Analysis

The pH or level of acidity of the vinaigrettes were tested through the assistance of the trainer from Food Processing NC II. The acidity of the vinegars were first measured and then the vinaigrette after all the ingredients were mixed. For the Paombong vinegar, the pH was 3.95 while the vinaigrette has 3.18pH. The tuba vinegar had 3.74 pH while the vinaigrette prepared had 3.64pH. Lastly, the Iloko vinegar had 4.32 pH while the vinaigrette measured 4.23 pH.



Based on the figures stated, the Iloko vinegar is the least acidic of the three followed by Paombong vinegar. The most acidic among the three is the tuba vinegar. However, after mixing the vinegars with other ingredients, the most acidic vinaigrette turns out to be the one with Paombong, followed by tuba and Iloko.

Product Costing

The cost of materials, supplies, labor and miscellaneous expenses of the recipes were computed based on the current market price. Table 4 presents the summary of costing with suggested selling price.

Conclusion

Based on the results of the product test, it is concluded that the developed vinaigrette Iloko with sunflower oil and vinaigrette tuba with sunflower oil could be viable products as salad dressing using local vinegars. The products provide consumers with a less expensive alternative to the ones available in the market. The recipes are easy to prepare and purchase for busy students and employees as well. It enables more people to try out salad greens and are generally acceptable to the intended market.

Recommendations

The result of the study proved that the developed salad dressings using local vinegars were generally satisfying and acceptable for the intended clients. Hence it is recommended that the product be produced and included in menus offered at TESDA Women's Center Cafeteria and have the recipe distributed to the Food Processing qualification for further tests on shelf life and possible bottling of the product. Furthermore, it is recommended that the Cookery NC II together with the Food Processing NC II and the TWC research team conduct a feasibility study to determine



the viability of commercializing the product. There is a possible market catering to restaurant and specialty stores. The opportunity to establish another income-generating project for the institution should be backed up by thorough research.



BIBLIOGRAPHY

- Aspiras, R. (2012, July 12). Lifestyle's guide to best salad dressing. *Philippine Daily Inquirer*.
- Dizon Farms. (2017, August 10). *Dressing*. Retrieved from dizonfarms.net: <http://www.dizonfarms.net/our-products/>
- Food and Nutrition Research Institute. (2015, July). *National Nutrition Survey*. Retrieved from fnri.dost.gov.ph: http://www.fnri.dost.gov.ph/images/sources/FactsAndFigures/2013_anthropometric.pdf
- Gavilan, J. (2015, April 30). *Indigenous vegetables and the Filipino diet*. Retrieved from Rappler.com: <https://www.rappler.com/move-ph/issues/hunger/91574-indigenous-vegetables-filipino-diet>
- Josefina Taguinod Gonzales, J. V. (2016). Consumption Pattern for Fruits and Vegetables of Some Filipino Adolescents in Selected Public Schools in the City of Manila. *Journal of Nutritional Disorders and Therapy*.
- Kitchen Project. (2017, August 10). *The History of Vinaigrette*. Retrieved from Kitchen Project: <http://www.kitchenproject.com/history/SaladDressing/Vinaigrette-History.htm>
- S.B. Concepcion, P. B. (2017, August 10). *Exploring the Institutional Market for Fresh Vegetables in the Southern*. Retrieved from Curtin University: https://espace.curtin.edu.au/bitstream/handle/20.500.11937/38950/185532_185532.pdf?sequence=2
- Tawid News Team. (2013, September 2). http://www.fnri.dost.gov.ph/images/sources/FactsAndFigures/2013_anthropometric.pdf. Retrieved from Tawid News Magasin: <https://tawidnewsmag.com/2013/09/average-filipino-eats-less-vegetables-fnri-survey-result/>
- The Association for Dressings & sauces. (2017, August 10). *History of Salad Dressings*. Retrieved from The Association for Dressings & sauces: <https://www.dressings-sauces.org/history-salad-dressings>



ANNEXES



ANNEX 1- RECIPES

Name : Vinaigrette (Standard)

Yield : 1 Liter

Ingredients	Specification	Qty	UOM
Vinegar / Citrus	Fresh	250	ml
Shallot (Fresh)	Fresh	15	grams
Oil	Olive / Sunflower	800	ml
Salt	Iodized	5	grams
Pepper	White, ground	5	grams
Honey		20	grams

Mise en Place :

- Wash , rinse, sanitize, peel and chop shallots

Method :

1. Mix all the ingredients in a mixing bowl and seasons with salt and pepper to taste.
2. Dressings or Vinaigrette can also be emulsified in the blender .

Picture and Notes:

- If the emulsion breaks, re-whisk before using. May be held indefinitely refrigerated.

Name : Tuba Vinaigrette



Yield : 750 ml

Ingredients	Specification	Qty	UOM
Tuba	Fresh	200	ml
Shallot (Fresh)	Fresh	25	grams
Oil	Sunflower	600	ml
Salt	Iodized	5	grams
Pepper	White, ground	5	grams
Honey		20	grams

Name : Iloko Vinaigrette

Yield : 750 ml

Ingredients	Specification	Qty	UOM
Iloko	Fresh	200	ml
Shallot (Fresh)	Fresh	25	grams
Oil	Sunflower	600	ml
Salt	Iodized	5	grams
Pepper	White, ground	5	grams
Honey		20	grams

Name : Paombong Vinaigrette

Yield : 750 ml



Ingredients	Specification	Qty	UOM
Iloko	Fresh	200	ml
Shallot (Fresh)	Fresh	25	grams
Oil	Sunflower	600	ml
Salt	Iodized	5	grams
Pepper	White, ground	5	grams
Honey		20	grams

Mise en Place :

- Wash , rinse, sanitize, peel and chop shallots

Method :

3. Mix all the ingredients in a mixing bowl and seasons with salt and pepper to taste.
4. Dressings or Vinaigrette can also be emulsified in the blender .

Picture and Notes:

- If the emulsion breaks, re-whisk before using. May be held indefinitely refrigerated.



ANNEX 2

LOCAL DRESSING
SURVEY FORM

Name of Panelist (Optional): _____ Date: _____

Sex: _____ Age: _____

Instruction: Evaluate the given samples on how much you like or dislike each product. Use the appropriate scale below in choosing your rating which best describes your feeling. Take a drink of water after each product tasted.

Sensory Attribute	Product Sample		
	211	217	277
Aroma			
Taste/Flavor			
Acidity			
Consistency			
General Acceptability			

Comments:

Rating Scale: (Appearance, Color, Odor, Consistency and Flavor)	Rating for General Acceptability
7- Like very much	9- Likely extremely (sagad na saga dang pagkagusto)
6- Like moderately	8- Like very much (gustong gusto)
5- Like slightly	7- Like moderately (medyo gusto)
4- Neither like nor dislike	6- Like slightly (konting gusto)
3- Dislike slightly	5- Neither like or dislike (hindi gusto at hindi ayaw)
2- Dislike moderately	4- Dislike slightly (konting ayaw)
1-Dislike	3- Dislike moderately (medyo ayaw)
	2- Dislike very much (ayaw na ayaw)
	1 – Dislike extremely (sobrang pagka ayaw)



