DEVELOPMENT AND CHARACTERIZATION OF CARROT MAIZE PANCAKE

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ABSTRACT

The carrot is a root vegetable, typically orange in color, though purple, black, red, white, and yellow cultivars exist, all of which are domesticated forms of the wild carrot, Daucus carota, native to Europe and Southwestern Asia. The plant probably originated in Persia and was originally cultivated for its leaves and seeds. The most commonly eaten part of the plant is the taproot, although the stems and leaves are also eaten. The domestic carrot has been selectively bred for its enlarged, more palatable, less woody-textured taproot. Maize, also known as corn, is a cereal grain first domesticated by indigenous peoples in southern Mexico about 10,000 years ago. The leafy stalk of the plant produces pollen inflorescences and separate ovuliferous inflorescences called ears that when fertilized yield kernels or seeds, which are fruits. The term maize is preferred in formal, scientific, and international usage as a common name because it refers specifically to this one grain, unlike corn, which has a complex variety of meanings that vary by context and geographic region. Combination of maize and carrot is new idea and it is acceptable in the form of pancake.

INTRODUCTION

Carrot is a root vegetable, typically orange in color, though purple, black, red, white, and yellow cultivars exist, all of which are domesticated forms of the wild carrot, Daucus carota, native to Europe and Southwestern Asia. Carrot is rich source of vitamin A.

Milk is a white liquid food produced by the mammary glands of mammals. It is the primary source of nutrition for young mammals before they are able to digest solid food. Immune factors and immune-modulating components in milk contribute to milk immunity. Early-lactation milk, which is called colostrum, contains antibodies that strengthen the immune system, and thus reduces the risk of many diseases. Milk contains many nutrients, including protein and lactose.

Sugar (sucrose) used is made up from glucose and fructose and is extracted from sugar cane or sugar beet. Sugar cane is grown in tropical and sub-tropical parts of the world, including South Africa, Brazil, India, Mauritius and the West Indies. Sugar boosts instance energy.

Eggs of other birds, including ostriches and other ratites, are eaten regularly but much less commonly than those of chickens. People may also eat the eggs of reptiles, amphibians.

Crunch on carrots to keep your skin healthy and vibrant. Carrots are high in beta carotene, an antioxidant that is converted to vitamin A inside the body. It helps repair skin tissue and protects against the sun's harsh rays. Carrots should be ready for harvest about 60-80 days after sowing seeds, depending on the variety. The tops of the carrot roots will be about ¾ to 1 inch in diameter and likely starting to pop out of the soil, though not necessarily.

Carrots are rich in vitamins, minerals, and antioxidant compounds. As part of a balanced diet, they can help support immune function, reduce the risk of some cancers and promote wound healing and digestive health.

MAIZE:

Maize is also rich in iron, phosphorous, zinc and various vitamins. Abundant in antioxidants, maize flour is proven to be good for eyesight and also helps in the prevention of cancer, and anaemia. Just like jowar, maize is also gluten-free and can consume it as gluten free diet.

Excess consumption of corn flour is not advisable for obese and diabetes patients. Maize flour has lower calories compared to wheat flour. It is high in proteins and starch.

Maize meals and flours have smaller granulation than grits and are popular products because of their long shelf life, freedom from black specks, and bright color. Maize meal is often enriched with thiamin, riboflavin, niacin, and iron. It is used to produce an assortment of chemically leavened baked and fried products such as corn bread, muffins, pancakes, corn sticks, fritters, hush puppies, and spoon bread Most maize bread formulations contain wheat flour, chemical leavening agents, sugar, salt, milk powder, and other ingredients.

Maize does not have a functional gluten so wheat flour is included to give the dough more elasticity and hence produce a more aerated lighter product. Hush puppies are produced from a chemically leavened dough, which contains maize meal, wheat flour, eggs, milk, salt, onions, and tomato. Pieces of dough are deep fat-fried for 2–3 min.

The use of maize flour, in blends with wheat semolina, to make pasta products is mentioned elsewhere in the book, and for making extrusion-cooked ready-to-eat breakfast cereals. Industrial uses for maize flour are noted elsewhere, especially in the discussion about alcohol production. Breading and batters and as a binder in processed meats.

Milk:

Milk is a white liquid food produced by the mammary glands of mammals. It is the primary source of nutrition for young mammals before they are able to digest solid food. Immune factors and immune-modulating components in milk contribute to milk immunity. Early-lactation milk, which is called colostrum, contains antibodies that strengthen the immune system, and thus reduces the risk of many diseases. Milk contains many nutrients, including protein and lactose.

Milk is an excellent source of vitamins and minerals, including “nutrients of concern,” which are under-consumed by many populations. It provides potassium, B12, calcium and vitamin D, which are lacking in many diets. Milk is also a good source of vitamin A, magnesium, zinc and thiamine (B1).

These include products made from milk, such as cheese, yogurt, kefir, ice cream and butter. Cow’s milk can be found around the world, as well as milk from other mammals like sheep and goats, among others. Dairy products like milk, cheese and yogurt each contain nutrients your body needs. Whole cow’s milk contains about 87% water. The remaining 13% contains protein, fat, carbohydrates, vitamins, and minerals. Processing techniques

remove fat to produce lower fat varieties: “reduced fat” contains 2% milkfat, “low-fat” contains 1% milkfat, and “nonfat” or “skim” has virtually no milkfat.

Calcium: Builds healthy bones and teeth; maintains bone mass

Protein: Serves as a source of energy; builds/repairs muscle tissue

Potassium: Helps maintain a healthy blood pressure

Phosphorus: Helps strengthen bones and generate energy

Vitamin D: Helps maintain bones

Vitamin B12: Maintains healthy red blood cells and nerve tissue

Vitamin A: Maintains the immune system; helps maintain normal vision and skin

Riboflavin (B2): Converts food into energy

Niacin: Metabolizes sugars and fatty acids.

Egg:

Humans have eaten animal eggs for thousands of years. The most widely consumed eggs those of fowl, especially chickens. Eggs of other birds, including ostriches and other ratites, are eaten regularly but much less commonly than those of chickens. People may also eat the eggs of reptiles, amphibians.

METHODOLOGY

3.1 Steps

In this first step,

Wash and clean the maize.

Dry in sunlight for grinding.

SIEVING:

In this second step,

Sieve it, to remove the large particles.

Remove outer layer.

ADD WET INGREDIENTS:

In this third step,

Grind Carrot, milk and sugar together.

Add beaten egg to carrot mixer.

Add flour to the wet ingredients.

MIXING:

In this fourth step,

Mix dry ingredients and wet ingredients well.

COOKING:

In this fifth step,

Cook at low flame.

Use butter for cooking.

SERVING:

In this last step,

Serve it with honey with medium heat.

3.2 Selection of Topic:

New product is the one that offers new benefits or features. It differs significantly from the products currently available in the market in terms of uses, appearance, taste, price and construction. New product is one which is perceived as a new by consumers. It may be original product, improved product, modified product or new brand. Various issues are related to a new product, such as how to develop a new product, how to launch it, how to manage it, Why it falls, what precautions should be taken to reduce its failure rate, and many other aspects. (**Ulrich 2017).**

The new product development emphasizes the Importance of introducing new products on the market for continuing business success. New products are responsible for employment, economic growth, technological progress, and high standard of living. **(Nadia Bhuiyan 2015).**

For every seven new product ideas, about half enter development, and one and a half are launched, and only one succeeds. Those new products may be based on other already existing ones and act as a complement or improvement to existing offerings, or may be totally New products based on new technology without the need of support from others (Standalone products). **(Allen & Hamilton, 2010).**

new product that is introduced on the market evolves over a sequence of stages beginning with an initial product concept or ideas that is evaluated, developed, tested and launched on the market. **(Booz, 2012).**

FIGURE 3.2.1 MAIZE AND MAIZE FLOUR

Nowadays people mostly insist on fast foods and forget the traditional food items and their effects on health. The health of the people was affected and the children have no proper growth. In this study "**Development and Formulation of Carrot Maize Pancake**" the properties of carrot maize and its role in the body were discussed. With this view, the present study was resulted that carrot maize when incorporated and formulated increases the Nutritional Benefits of Iron, Phosphorous and prevention from Anaemia.

FIGURE 3.2.2 CARROT JUICE (STRAINED)

3.3 SENSORY ANALYSIS:

Sensory analysis is a scientific discipline that applies principles of experimental and statistical analysis to the use of human senses for the purpose of evaluating consumer products . Colour , texture, flavour, taste and appearance are the main criteria used for sensory evaluation **(Amerine 2014).**

Sensory evaluation is a critical component to that process. Historically, sensory evaluation has often been associated with product experts, and later as a more passive member of the product development team. **(Dermott, 2013)**.

Packaging is defined as enclosing food to protect it from tampering or contamination from physical, chemical and biological sources. Packaging maintains the benefits of food processing after the process is complete, enabling foods to travel safely for long distances from their point of origin and still be wholesome at the time of consumption. The primary purpose of food packaging is to protect the food against attack from oxygen, water vapour, ultraviolet light, and both chemical and microbiological contamination. **(Prasad)**

3.4 PROXIMATE ANALYSIS:

3.4.1 MOISTURE CONTENT (g)

The moisture content was estimated using the oven-dry method at 105°C to 110°C until the weight was consistent, which took about 16-17 hours (AOAC, 1990). The main goals of assessing moisture content in foods are to examine quality, quality assurance, quality control, and adulteration detection, as well as to analyse stability and shelf life during storage.

FIGURE 3.4.1 DRIED CARROT MAIZE PANCAKE

3.4.2 Ash (g) content:

To assess ash concentration, around 5 g of samples were burned for 8 hours at 550°C in a muffle furnace (Gelman, Germany). The total ash content was calculated as a percentage of dry weight (method no. 940.26, AOAC 1990).

FIGURE 3.4.2CARROT MAIZE PANCAKE (ASH)

3.4.3 Fat (g) Content:

The fat content of the osmotic dehydrated, hot air-, and dried carrot maize pancake snack was determined using petroleum ether (40-60°C) and the AOAC soxhlet apparatus (1990). In a thimble, the dry sample (2-5 g) is precisely weighed. The thimble is then placed in a soxhlet apparatus and extracted for roughly 2 hours with petroleum ether. Filter the ether extract into weighted beaker. The ether is then evaporated, and the residue is dried in an oven at 80 to 100 degrees Celsius, cooled in a desiccator, and weighed.

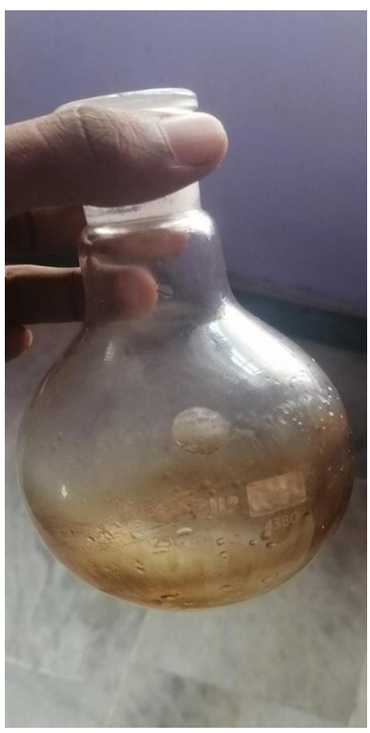

FIGURE 3.4.3 CARROT MAIZE PANCAKE FAT TEST

3.4.4 Carbohydrate (g) Content:

Using glucose as a standard, the amount of carbohydrate in the sample was measured using the Cal Anthrone technique. Using dilute HCI, carbohydrates are first hydrolyzed into simplesugars. Is dehydrated to hydroxymethyl furfural in a hot acidic media. This chemical creates green-colored product with a 630 nm absorption maximum when combined with anthrone Glucose (ADAC, 1990). Sugars were measured before and after inversion using copper reduction methods to estimate the presence of total sugar in samples

RESULT AND DISCUSSION

4.1Proximate composition of Carrot Maize Pancake

The major component that persuade changes in food composition are Carbohydrate, fat. The Proximate composition which are vital for healthy body in terms of metabolic function are discussed below

4.1.1. Carbohydrate (g) content of carrot maize pancake

Carbohydrate reveals a composite range of compounds seen in food namely starches, sugars, oligosaccharides and maltodextrins. In the present study, the carbohydrate content of the Carrot maize pancake undergone changes with respect to various impregnations followed by drying methods.

Sl .no	Sample name	Carbohydrate content (%)
1	Carrot maize pancake	39.9%

TABLE 4.1.1 CARBOHYDRATE CONTENT TABLE

Carbohydrate (g) content of carrot maize pancake:

The concentration of carbohydrate in the impregnated samples exposed to different drying ethods were almost similar and slightly higher when compared to the 51 control samples due the concentration of nutrients during the drying process (Joshi and Mehta, 2010).

4.1.2.Total fat (g) content of carrot maize pancake:

Fat is considered as a concentrated form of energy and utilised in our body according to the requirement. Contains medium chain fatty acids as main constituents which provide maximum potential health benefits against most of the degenerative ailments. After dehydration, the concentration of fat was greater which is consistent with the result of Joshi and Mehta, (2010).

Sl.no	Sample name	Total fat content (%)
1	Carrot maize pancake	10 %

Table 4.1.2 Total Fat test

4.1.3. The moisture (g) content of carrot maize pancake:

The increasing interest of the consumers in natural products involves the use and diffusion of technologies which can offer a guarantee of preservation, hygiene and genuineness of food products. Preservation followed by shelf-life extension of the foods is

assured by drying methods which is more predominant in the emerging world. In general, drying removes moisture from the foods which ultimately prevents from microbial entry, a cause for food spoilage or deterioration (Raoult-Wack, 1994).

Sl.no	Sample name	Moisture content (%)
1	Carrot maize pancake	47 %

Table 4.1.3 Moisture Test

4.1.4. The ash (g) content of carrot maize pancake:

The ash content of the carrot maize pancake Ash content represents the inorganic residues remained after the application of heat in foods. The total amount of minerals in food was estimated by determining the ash content (Monti et al., 2008).

Sl .no	Sample name	Ash content (%)
1	Carrot maize pancake	18%

Table 4.1.4 Ash test

SUMMARY AND CONCLUSION

The role of new products in achieving company goals was clearly communicated to fan such firms. Thus, once a clear NPS is defined, the related confounding problem is communicating clearly the needs, requirements, resources, and plans for a new product effort in essence, internalizing the strategy. This communication must take place in multiple oms; however, a well-documented plan and specification must serve as the foundation. In summary, the establishment and communication of a clear plan and a strategy for an NPD project is a key requisite for success. Businesses that have a well-articulated NPS fare much better than those lacking in this aspect and they have 32 percent higher NPD success rates, meet sales objectives 42 percent more often, and meet profits objectives 39 percent better (Cooper & Klein Schmidt, 2001)

Formulation is developing new products from concept to commercialization. Position of the product will also enhance and improve upon current products. New product formulation serves as technical expert that supports product improvements, quality improvements, customer requests, and cost saving initiatives. (Jasmohan, 2000)

In the present study, carrot maize pancake is prepared in different variations along with the standard, sensory analysis was done and most acceptable proportion was selected and nutrient analysis was also done and shelf life studies. The cost of the product was estimated.

The present study entitled "**CARROT MAIZE PANCAKE**" is summarized.

It was noted that the quality of the product kept in air tight container is accepted by the panel members. The score obtained for all the sensory parameters, Appearance, Colour Flavour, Taste and Texture were calculated and the mean score is given.

Carrot Maize Pancake is rich in Iron and Phosphorus. The resistant iron present in the maize helps in maintaining the Anaemia. So, this carrot maize pancake is recommended for

diabetic patients. Also, the Vitamin C present in this caroot can be suggested to eye sight and vitamin c and vitamin A deficiency.

CONCLUSION:

From the study, it is concluded that the carrot maize pancake is accepted in studies. The prepared product is high in Iron and Vitamin C. when compare to the Standard Product. The prepared product is acceptable till 2 days if it is stored in air tight container properly. The cost of the best product was lower than standard that was cost efficient.

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