

How Mayonnaise Turned As A Culinary Mother Sauce (A Molecular Study Of Different Oil's And Their Results To Finds Better Tasting And Stable Mayonnaise)

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ABSTRACT

In different additions and cookbook published by the chef G. Auguste Escoffier's, Jules Gouffé's, Antoine Carême's or even Prosper Montagne's cookbooks except the translations or adaptations Mayonnaise considered being mother sauce for all the cold sauces. However, the same time it reveals that Hollandaise sauce never was considered a mother sauce by the chef G. A. Escoffier. Over the year many translations of Chef Escoffier cookbooks had been published particularly "A guide to Modern Cookery by Escoffier, London, William Heinemann, 1907" has created this dilemma where he listed 10 mother sauces replacing Mayonnaise with Hollandaise as a mother sauce. This Paper emphasised to turn the mayonnaise as a culinary mother sauce with the usage of different nuts based, olive, rice bran, mustard and vegetable oil with expert evaluation. The sauce has been prepared with different grams of oils and ingredients.

Keywords Mayonnaise, hollandaise, mother Sauces, daughter Sauces, Chef GA Escoffiers, cold sauce, cookery

Introduction

In modern world of cookery, there are six mother sauces consisting of five hot (Béchamel, Espagnole, Hollandaise, Tomato Sauce, and Velouté) and one cold sauce i.e. Mayonnaise sauce. These mother sauces considered to be the base for the well known sauce, we use in day to day life. By adding few ingredients one can create 100's of variations if know he/she carries the basic knowledge about preparation of mother sauce. As per Chef Escoffier's work Mayonnaise sauce is a base sauce for cold sauces. The sauce represents the best example of emulsion and widely used in variety of preparations like burgers, sandwiches, dips, salads etc. These days mayonnaise becomes a staple sauce around the world, however sometimes due to industrialisation and money making business they create mayonnaise very unhealthy to consume. The reason is very simple the companies are producing mayonnaise on large scale add a lot of preservatives, sometime quantity and price in the market bet the quality and use of stabilizers to maintain the quality and increase the shelf life of the their product naturally taste it different. The use of Mayonnaise is happening widely and so much that it can be seen in a fine dine restaurant to a vender selling street food. The Mayonnaise is a perfect example of emulsion of very basic ingredients which are easily available in the kitchen. A Jar of processed mayonnaise is a handy ingredient in your kitchen, however the taste of self made or house made mayonnaise taste completely different, one really have not had the real mayonnaise until they taste the fresh house made sauce.

HISTORY

In order to understand the mayonnaise as a mother sauce we need to understand what is a mother sauce and why we need the mother sauce. In simple words, mother sauces are the group of leading sauces from which other sauces can be made. These sauces are also known as Grandes sauces-leading sauces & the sauces made from these are known as derivates or small sauces or Daughter sauces. Before 18th century several sauces already exist in the Spain and the French cookery. In mid of 17th Century Francesc Roger Gomila, a Valencian friar, published a recipe of a sauce which was very parallel to mayonnaise called aioli bo in the book of Art de la Cuina (The Art of Cooking). In 1756, when Duke of Richelieu conquered Menorca and then he took port for Mohan and history says the aioli bo sauce then after agreed by the cook of Duke of Richelieu. After his return to France, made the same sauce in the French Court. By that point onward the sauce in progress was known as mahonnaise (indicating it was named following the city of Mahon). The word "mayonnaise" is verified in English in 1815. Later Chef Georges A Escoffier wrote that the mayonnaise as the mother suace for Cold sauces & the same had been incorporated in his French cookbooks. Hence during 18thCenturay the concept of mother sauces developed and Mayonnaise considered as one of the mother sauce apart from five other sauces.

INVENTION

The invention of the sauce or the name is possibly derived from three different sources- 'mahon', 'manier' (meaning to stir), and 'moyeu' (referred to the middle of the egg)

As per the basic science in cookery mayonnaise considered to be a mother sauce as it carries the basic nature of true emulsion & like any other mother sauce many daughter sauces derived from Mayonnaise.

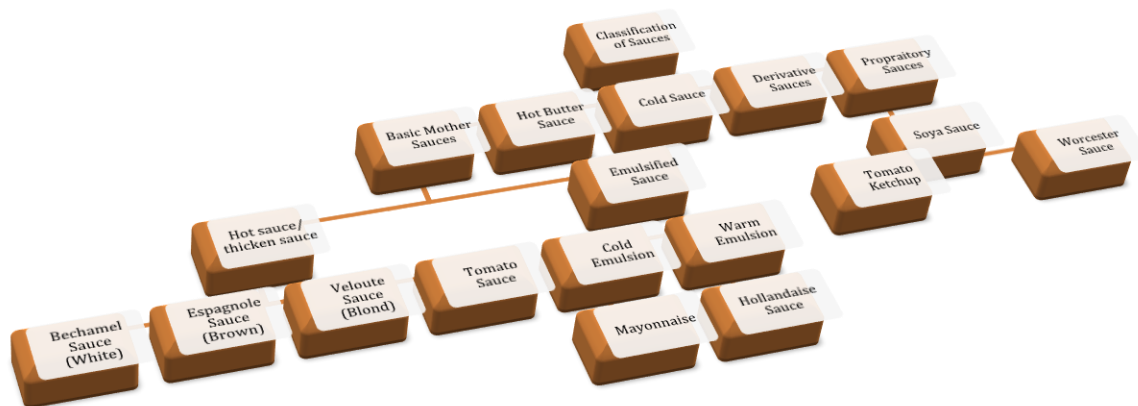


Figure 1. Classification of Sauces (4)

Sauces were invented as cooking mediums, meat tenderizers and flavour enhancers. Each culture developed its own style, using favoured ingredients and techniques.

Composition

Mayonnaise is a dense cold sauce mainly made up of vegetable oil and yolks. It is little whitish yellowish in colour. It is a steady emulsion made from oil and yolk flavoured with salt, pepper, different edible acids and a bit of mustard. It is very important to use fine quality of ingredients, most importantly the oil and vinegar. Use of olive oil considered to be the best as it contain roughly 14% of the oil is saturated fatty acids, whereas polyunsaturated value is approx. 11%, whereas omega-6 and omega-3 fatty acids, But the major fatty acid in olive oil is a monounsaturated fat called oleic acid, formulating up to 73% of the total oil matter, contains Large Amounts of Antioxidants and much more.

Usually homemade mayonnaise yields approximately 75% of fats before the emulsion disrupts down & mercantile mayonnaises are more stereotypically 65-70% fat. Commercial products normally replace much or all of the egg based ingredients with water, needing the addition of lecithin or other emulsifier from sources such as soy. Low fat mayo products contain starches, cellulose gel, or other elements to simulate the feel quality of traditional mayonnaise.

Household mayonnaise emulsion can also be made using fresh egg whites, without yolks at all, at least if it is done at high speed in a food mixer. The real outcome appears to be the same and if

nicely seasoned with salt, crushed pepper, mustard, lime juice, fruit vinegar, and a little chilli powder, it tastes similar to conventional mayonnaise made with egg yolks.

Since traditional mayonnaise uses raw egg yolks, it may pose a threat of salmonella related food poisoning. Whereas in the commercial set up the manufacturers pasteurize the yolks, or freeze them to ice and then thaw before use, and replace it by water for most of their fluid, or use other emulsifying agents. In home, make sure to use the freshest eggs possible, and carefully clean them before use. Some shops sell pasteurized eggs for domestic use too. You may also coddle the eggs in simmering water at 92-95* C for a minute and remove the yolks, which will have cooked faintly, from the whites. Household mayonnaise can be stores under refrigerated conditions for 3-4 days. A fat free types can be made with tofu too.

Preparations and recipe

The methods given below can be done by an electric whisker or even a hand held whisk to produce same kind of results, whereas the manual style will definitely test your arm muscles to consider them fit.

Table 1.Preparation of Recipe and its Expert Evaluation

Kitchen based Standard Recipe and Experiments							
Ingredients	Vegetable Oil	Rice Bran Oil	Olive Oil	Mustard Oil	Peanut Oil	Truffle infused Extra Virgin Olive Oil	Sesame seed Oil
Fresh coddled Egg yolk	25 gm	25 gm	25 gm	25 gm	25 gm	25 gm	25 gm
Grainy mustard Paste	2 gm	2 gm	2 gm	4 gm	2 gm	2 gm	4 gm
Salt	2 gm	2 gm	2 gm	5 gm	2 gm	2 gm	2 gm
Crushed Pepper	1 gm	1 gm	1 gm	1 gm	1 gm	1 gm	1 gm
Oil	125 ml	125 ml	125 ml	125 ml	125 ml	125 ml	125 ml
White Wine Vinegar	15 ml	10 ml	15 ml		15 ml	15 ml	
Lemon Juice				30 ml			25 ml
Herb	1 gm	1 gm	1 gm	1 gm	1 gm	1 gm	1 gm
Hot water				10 ml			7.5 ml

Whisking Time (Electric whisker)	4.27 mnts	5.12 mnts	3.09 mnts	7.23 mnts	5.09 mnts	5.19 mnts	6.42 mnts
Experts Evaluation (general)							
Colour	Pale yellow	Pale yellow	Faded yellow	Mustard Yellow	Pale yellow	Lemon yellow	Beige yellow
Appearance	Thick and stable	Thick and stable	Thick and stable		Thick and stable	Thick and stable	
Taste	Oily taste in the tongue	Husky after taste	Smooth mouth feel	Pungent mouth feel and has a natural bite on tongue	Smooth nutty flavour	Smooth taste with after truffle taste	Intense nutty and roasted flavour
Smell	Fresh oily and eggish	Fresh oily smell	Fresh oily smell	Raw mustard	Fresh Nuts	Deep Truffle	Roasted sesame flavour
Aroma	Mellow sour ,acidic	Acidic	Mellow without any distinguished after taste	Fierce pungent mustard taste	Mellow acidic taste	Deep rooty flavour	Citric after taste
Texture	Geltaneous	Geltaneous	Geltaneous	Runny & sub gelataneous	Geltaneous	Geltaneous	Runny & gelataneous

Mayo is traditionally made by slow addition of oil to an egg yolk, mustard, acidic liquids, and seasoning. Where in, mustard helps to retain the emulsion steady while whisking dynamically to disperse the oil molecules into the liquid. Egg yolk has god lecithin, which plays role of the emulsifier. All ingredients are added at the initial stage of the process to avoid flecks. Addition of the salt after emulsification can produce white speckles. Whisk yolks, salt, mustard, sugar (if required), pepper, and some lemon juice in a mixing bowl until fairly thick and soft yellow, It is measured essential to continually whisk the mayonnaise using a whisk while adding the olive oil drip by drip at a time, fully combining the oil before adding the next drop.

It can also be simply prepared by using mechanical mixers. For using mechanical technique place yolks, salt, mustard, sugar, crushed pepper, and lemon juice in blender cup or container of a processor fitted with the metal whisking attachment of blade, and kick for 15 seconds using gentle blender speed. Thereafter, with machine running, slowly drop in 1/4 oil using moderately speed of blender. As everything starts to gelatinize, start adding oil in a fine steady flow, substituting with hot water (if required) and persisting lemon juice. Kill the motors witch and scrape off everything down from sides of processor cup or mixing bowl as required. The main key is to keep the materials at room temperature and not refrigerated. A chilled bowl, eggs taken right from the refrigerator, might avoid the mayonnaise from getting thick. If it is mishandled, it will get dispersed giving a curdled form.

This sauce is always served cold and thus forms a base for most of the salads and sandwich fillings. Mayonnaise and its daughter sauces are mostly served as the dipping sauce with snacks and salads dressings.

Derivatives/daughters sauces

Mayonnaise one of the main mother sauces of traditional French cooking, so it is the source for many other chilled sauces and many other dressings for salads.

Table 2: Derivates of Sauces

Daughter Sauce	Ingredients with mixed Mayonnaise
Tartar Sauce	Dill leave, parsley, lemon juice, sugar, black pepper, chopped onion, gherkins, hardboiled egg
Thousand Island	Boiled egg, ketchup, gherkin, onion, pimentos
Honey Mustard Sauce	Mustard, honey, mayonnaise, lemon/vinegar, cayenne pepper
Pesto Mayonnaise	Mayonnaise and pesto
Cocktail Sauce	Tomato ketchup, worcestershire& tabasco sauce
Aioli	Pound garlic
Remoulade	Chopped gherkins, chopped capers, parsley, chervil and some anchovy essence.
Gribiche	Chopped capers, gherkins, finely chopped herbs and juliennes of hardboiled egg.

Objective

With the help of historical facts and scientific reasons, the primary objective behind this research is to understand why mayonnaise is considered to be a mother sauce. To study the basic nature of a mother sauce and the importance of cold mother sauce. As cold sauces play a vital role in the kitchen and goes well with a lot many dishes hence a leading or a mother sauce needed to explain and compile the category of cold sauces & same has been explained with the help of various daughter sauces. As this was the experimental study which has certainly highlighted the role of each nut oil used here and their quality output in the experiment. Where common vegetable oil is primarily used in mayonnaise or emulsion based edible sauce's and the only reason seen was its price value-which was cheap, whereas nuts based oil have really given better result in terms of their viscosity, helped in quick emulsification and better quality taste tests and feedback given by our food connoisseurs.

Analysis

1. Mayonnaise or similar kind of sauces were already existing even before the name mayonnaise was registered 18th century.
2. As per the historical background Chef GA Escoffier had add mayonnaise as a mother sauce in his cookbooks.
3. Many of the sauces and dressings are made by taking mayonnaise as a base, hence Mayonnaise act base of many daughter sauces.
4. Like any mother sauce, there are some basic rules which need to be followed while its preparations, like set quantity, method of preparation and quality of ingredients need to be kept in mind.
5. It is very important to use fine quality of ingredients, most importantly the oil and vinegar like Use of olive oil and natural vinegars are considered to be the best and good for health.

Conclusion

Over the year many translations happened for the cookbooks written in French by Chef GA Escoffier, that time mayonnaise was replaced by hollandaise as fifth mother sauce in One version in particular could be at the origin of this problem "A guide to Modern Cookery by Escoffier, London, William Heinemann, 1907, "Mayonnaise" had substituted with "Hollandaise" sauce, without any reference or explanations from the interpreter himself and extensively advertised online. However Chef GA Escoffier had also endorsed himself with establishing the reputation of Espagnole, Velouté, Béchamel and Tomato, along with Hollandaise and Mayonnaise. In his book in Le guide culinaire he even considers mayonnaise as mother sauce and hollandaise as daughter sauce. Many cold sauces originate from Mayonnaise sauce, and that is why it must be deemed as a mother sauce. As this was the experimental study which has certainly highlighted the

role of each nut oil used here and their quality output in the experiment as per factors mentioned below

Price: Common refined mixed vegetable oil is primarily used in mayonnaise or emulsion based edible sauce's and the only reason seen was its price value-which was cheap.

Viscosity/appearance: Nuts based oil have really given better result in terms of their viscosity, helped in quick emulsification and better quality retention.

Taste: taste tests and feedback given by our food connoisseurs. For each and every sample got mixed review, but mostly approved the taste of nut based oil and surprisingly olive oil as best smoothest oil which can be used for its smooth texture but not the taste and at the same time it is too expensive as well.

Colour: Colour of the mayonnaise based emulsion sauce usually has more white texture due to the usage of bleach that is added during the production process in commercial setup. Whereas we have used pure product which is fresh and hoe made, so the colours were natural. Most the experts approved best for peanut oil as it was having pale colour texture to the emulsion where as other string oils had their natural colouring residue into the sauces. Dark sesame oil had made the sauce look almost dark beige in colour.

Aroma: The best aroma was from sesame seed oil based emulsion. It was having strong nutty and tangy aroma, which was really complimenting grains and vegetables based salads. On the other side the second best was truffle infused oil based emulsion which was having distinct truffle aroma and was really complimenting with fruit and cheese based salads and sandwiches.

REFERENCES

1. Retrieved December 23, 2021 from <http://chefsrecipecatalog.blogspot.com/> by John Berkowitz
2. Retrieved December 25, 2021 from <https://www.yourarticlelibrary.com/>
3. Retrieved December 23, 2021 from <https://setupmyhotel.com/train-my-hotel-staff/chef-training/788-classification-of-sauces-or-types-of-mother-sauces.html>
4. Retrieved December 24, 2021 from https://www.healthline.com/nutrition/11-proven-benefits-of-olive-oil#TOC_TITLE_HDR_10
5. Retrieved January 2, 2022 from <https://gallica.bnf.fr/ark:/12148/bpt6k96923116>
6. Retrieved January 3, 2022 from <https://archive.org/details/cu31924000610117>
7. Retrieved January 3, 2022 from <https://setupmyhotel.com>.