

CHAPTER 1

SOUPS

A. BASIC RECIPES OF THE FOLLOWING SOUPS :

Broth, bouillon, puree, cream, veloute and chowder

B. GARNISHES AND ACCOMPANIMENTS :

C. INTERNATIONAL SOUPS :

Define Soups.

Exam-Classify soup with example in a chart form.

Explain chowder and bisque.

Name six national soups giving the country of origin.

Difference between cream soup and puree soup.

Explain garnishes and accompaniments used for soups.

Exam - Write short notes on international soup. 2.5

Exam – six national soups with country of origin. 5

NATIONAL SOUPS:-

<u>Name</u>	<u>Explanation</u>	<u>Origin</u>
MANHATTAN CLAM CHOWDER	(Chopped Clams in fish stock, potatoes, pork, leeks, celery, carrots, and tomatoes.)	AMERICAN
GREEN TURTLE SOUP	Consommé with a sachet of turtle herbs and turtle meat. Garnish of turtle meat and this is flambéed.	ENGLAND
PETIT MARMITE	Chicken Stock with a garnish of marrow and croutons	FRANCE
PAPRICA SOUP	Consommé spiced with paprika and a garnish of diced beef, and a Brunoise of vegetables including potatoes, garlic and cumin.	HUNGARY
MULLIGATAWNY	Curried lentil soup garnished with rice and chicken dices. Served with a wedge of lemon.	INDIA
MINISTRONE	Paysanne cut vegetables, black eye beans – Tomatoes, spaghetti, potatoes and carrots.	ITALY
BORSCHT	Fumet of Duckling – highly spiced, with grated raw beetroot.	POLAND
LEBERKNOEDEL – SUPPE	Consommé with liver dumpling	GERMANY

CHAPTER 2

SAUCS AND GRAVIES:

- DIFFERENCE BETWEEN SAUCES AND GRAVIES
- DERIVATIVES OF MOTHER SAUCES
- CONTEMPORARY AND PROPETIERY SAUCE

Name the basic / leading / mother sauces giving two derivatives of each with ingredients.

What are the ingredients used in thousand island and tartar sauce.

Difference between sauce and gravy.

Explain contemporary and proprietary sauces.

SAUCE

What is sauce: sauce is a hot or cold seasoned liquid either served with or used in cooking of a dish to impart flavor to the dish which is compatible (suitable) with the ingredients (of the dish). The word comes from the Latin word "salsus" which means salted since salt has always been the basic condiment.

Careme and Escoffier are the two chefs who have contributed to the development of sauces in French cuisine. Careme was the first one to come up with a classification of mother sauces and Escoffier refined the sauces and added more derivatives or small sauces to these mother sauces

Demiglace or Espagnole, veloute, tomato and hollandaise are often referred to as the "grand sauces" or "mother sauces". Modern day chefs also classify mayonnaise as a cold mother sauce.

Characteristics of sauce:

A sauce may be thin or thick; it may be strained or it may contain visible ingredients. It may be used to season raw food (coleslaw);

The structure of sauces:

The major sauces we consider here are made of three kinds of ingredients

1. A liquid , the body of sauce
2. A thickening agent
3. Additional seasoning and flavoring ingredients

CLASSIFICATION OF SAUCES:

Foundation sauce/Mother sauce -

1. Starch thickened sauce (béchamel, veloute, tomato, espagnole)
2. Emulsified sauce (hollandaise, mayonnaise)

Non derivative sauce:

1. English sauce
2. Proprietary sauce
3. Butter Sauce
4. Dessert Sauce

BECHAMEL SAUCE -

- A Béchamel sauces is made by thickening milk with white roux and simmering it with aromatics.
- The milk is first reduced or boiled with aromatics such as onions wrapped with bay leaf and cloves (called onion cloute) and then thickened with roux.

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- When properly prepared Béchamel sauce should have a creamy flavour, reflecting its base liquid which is milk.
- There should be no raw taste of roux remaining in the sauce which means that it needs to be cooked thoroughly for sufficient time.
- A good béchamel sauce will have a definite shine and will be perfectly smooth with no graininess.
- Béchamel sauce is finished with butter to avoid skin formation on top.

Recipe for béchamel sauce:

Flour –30 gm , Butter- 30 gm , Milk – 1 liter, Onion cloute – 1no, Seasoning –TT

Derivatives of Bechamel –

MORNAY-Béchamel+ Grated Cheese+ Cream + Egg Yolk
 CREAM SAUCE- Béchamel+ Fresh Cream+ Butter

SOUBISE –Béchamel +Sautéed Minced Onions + Nutmeg And Strained.

CARDINAL – Béchamel + Lobster Butter + Truffle Essence+ Fish Fumet

MUSTARD- Béchamel + Fresh Cream + Butter +Mustard

PARSLEY – Béchamel + Fresh Cream + Butter+ Chopped Parsley.

VELOUTE

- This sauce used to prepare numerous white sauces using blond roux, has a name that translates from French as velvety, soft and smooth to the palate.
- A truly excellent veloute should meet several criteria such as it should have a pale ivory colour with no hint of grey, should be shiny and perfectly smooth, with no hint of graininess.
- The sauce should have a noticeable body thick enough to coat the back of a spoon, yet still easy to pour from a ladle.
- Basic veloutes are classified as three which are as follows:
 1. Fish veloute
 2. Chicken veloute
 3. Meat veloute

Recipe of veloute sauce –

Butter – 20 gm

Flour- 20 gm

Stock (chicken/veal/ mutton/ fish)- 1 Lt

Mushroom trimming- 25 gm

Bouquet garni- 50 gm

Derivatives of Fish veloute

NORMANDE – fish veloute+ mushroom+ oyster liquor+ fumet, finished with egg yolk and cream +shelled shrimp tails+ shrimp butter.

BERCY – Normande + Shallots + White wine + Parsley + Butter

CREVETTES - Normande sauce + Shrimp butter + Chopped cooked shrimps

DIPLOMATE – Normande + Lobster butter + Lobster dices + Chopped truffle.

VIN BLANC – Normande + White wine + Shallots + Fines herbes

AMIRAL – Vin Blanc sauce + Grated lemon zest + Chopped anchovies + Capers

ANCHOIS – Normande + Anchovy butter + Chopped anchovy fillets

Derivatives of Chicken veloute

SUPREME – chicken veloute + white wine + parsley+ shallots+ mushrooms trimming and strain. Add fresh cream+ yolk+ lemon juice.

HONGROISE – Supreme + Chopped onion + Paprika +White wine

ALBUFERA – Supreme + Meat glaze + Pimento butter

IVOIRE – Supreme or Allemande + Meat glaze

CHIVRY – Supreme + Fines herbes + White wine + Butter

PRINCESS – Supreme + Julienne of chicken + Mushroom liquor + Chopped mushrooms + Asparagus tips.

Derivatives of meat veloute:

CAPER – mutton veloute + capers

RAVIGOTE – veal veloute + white wine+ vinegar+ shallot butter, garnished with dices of marrow and chopped parsley.

TOMATO SAUCE –

- There are several approaches to making a tomato sauce.
- The first approach is what is generally known as Tomato concasse which is basically prepared by using fresh tomatoes and cooking them in olive oil with garlic and onions, chopped bacon, blond roux..
- The tomatoes used for making concasse are usually deskinmed, deseeded and chopped but alternatively they may be left whole along with the skin and seeds in case of bulk operation.
- The other approach to what is known as Tomato sauce and is a part of the mother sauces is prepared by cooking good brown stock with plenty of fresh tomatoes and adding cooked tomato paste to the sauce reducing it considerably, straining it and serving it as a sauce.
- Tomato sauce should have a deep, rich tomato flavour, with no trace of bitterness, or acidity or sweetness. Tomato sauce is slightly coarser than any of the other mother sauces because of the degree of texture that remains even after pureeing and straining the tomatoes.
- Plum tomatoes sometimes referred to as Roma tomatoes are generally preferred for Tomato sauces since they have a relatively good ratio of flesh to skin and seed.

Recipe of tomato sauce:

Flour – 10 gm , Butter- 10 gm , Bacon- 5 gm , Onion – 80 gm , Carrots- 50 gm , Celery- 10 gm , Bayleaves -2 no, Tomato puree- 150 gm , Chicken stock- 600 ml , Sugar- 6 gm , Salt –TT, Pepper- TT

Derivatives of Tomato Sauce –

PORTUGAISE – Tomato sauce + Garlic + Fresh Diced Tomatoes + Chopped onions

ITALIENNE – Tomato sc + demi glaze + chopped shallots+ mushrooms+ lean ham+ Fine herbes

BRETONNE – Tom Sc + White wine + Ch parsley + Ch onion + Garlic + Demi glaze + usually some boiled bean puree or whole beans are added.

PROVENCALE – Tomato sauce + Garlic + Parsley + Sugar + chopped onion+ mushrooms

BARBECUE – Tomato sc + Mustard + Tomato ketchup + Pineapple juice + Chopped bell peppers + Chopped onion, garlic, Pineapple + Sugar + Vinegar

CHAUD FROID – Tomato sauce + Aspic

BROWN SAUCE / ESPAGNOLE –

- Espagnole which is commonly referred to as Brown sauce was originally prepared in a lengthy process where in browned veal bones and mirepoix were reduced with ham and partridges to prepare a flavourful brown stock which was then thickened with brown roux.
- This recipe was documented by Careme and the sauce was called “Espagnole” which means “Spanish sauce” after the ham which was added in the sauce as Spain during that time produced the best hams in the world.
- Technically speaking it is incorrect to term modern day brown sauce as “Espagnole” because ham is no longer used these days for preparation of brown sauce.
- The four basic elements of brown sauce are – brown veal stock also known as Estouffade, mirepoix cut into large dice, tomato puree and brown roux.
- The stock is directly responsible for the ultimate success of the sauce and it must be of excellent quality, with a rich appealing flavour and aroma.

The tomato puree should be thoroughly cooked before adding it to the stock. Allowing the tomato puree to cook out reduces any excessive sweetness, acidity, or bitterness, which might affect the finished sauce. This process is referred to in French as pincage, a culinary term which indicates that an ingredient usually tomatoes is browned in fat.

DEMI – GLACE

The name demiglace translates literally as “half glaze”. The sauce is prepared by taking equal quantities of good brown sauce and brown stock or estouffade and reducing it to half of its original volume.

Recipe of espagnole:

Flour –20 gm , Butter- 20 gm , Bacon – 30 gm , Onion – 100 gm , Bouquet garni- 50 gm , Brown stock- 1 lt, Tomato puree- 30 gm , Carrots – 100 gm , Salt- TT, Herbs – 10 gm

There are a number of derivative sauces which are based on brown sauce or demi glaze and are as follows:

BERCY – Shallots + White wine + Parsley + Peppercorn +Butter +Dices of bone marrow.

BORDELAISE – Red Bordeaux wine reduction + Demi-glace + Poached bone marrow

CHARCUTIERE – Robert sauce + Julienne of gherkins

CHASSEUR – Means hunter’s style – Mushrooms + Shallots + White wine + Tomato concasse + Brown sauce

CHATEAUBRIAND – Shallots + chopped mushrooms + white wine + butter + thyme + tarragon + parsley.

DIABLE – Also devil’s sauce – White wine reduction + shallots + crushed peppercorns + Cayenne pepper.

FINES HERBES – White wine + lemon juice + chopped fines herbes.

PIQUANTE – White wine reduction + vinegar + shallots + chopped gherkins + chervil + tarragon + peppercorns

ROBERT – White wine + Mustard + Chopped onions + Butter

POIVRADE – Red wine reduction + Peppercorns + Butter

MOSCOVITE – Poivrade sauce + juniper berries + toasted sliced almonds + black currants + Marsala wine.

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HOLLANDAISE –

- This sauce received its name as recognition of the butter and other high quality dairy products produced in Holland.
- Since the largest proportion of Hollandaise sauce is butter, the sauce will succeed or fail depending on the quality of butter as well as other factors such as temperature, and skill full balance of egg yolks.
- Hollandaise belongs to a group of sauces known as emulsion sauces. An emulsion is formed when one substance is suspended in another substance – in this case clarified or melted butter is suspended in partially cooked egg yolks.
- This sauce is very fragile or delicate as it is not a true mixture but a suspension of particles and can easily disintegrate or separate into individual components.
- A good hollandaise sauce should have pale lemon colour with a satin smooth appearance, texture and a light and frothy consistency.
- To prepare Hollandaise a reduction is made either with white wine or white wine vinegar, chopped shallots and peppercorns. Freshly squeezed lemon juice, salt and white pepper may also be added. The mixture is allowed to cool, egg yolks are added and then very carefully over a double boiler it is beaten with a whisk and a fine stream of clarified butter or melted butter is incorporated in the sauce.
- The sauce will thicken as more and more butter is blended in. Hollandaise sauce should always be kept or stored at a temperature of 70°C. Approximately 100 gm of butter should be added for each egg yolk.

Recipe of hollandaise sauce: Melted butter – 800 gm , Egg yolk- 8 nos , Vinegar/ lemon juice- 30 ml, Peppercorn (crushed) - a few nos, Salt- TT, Cold water- 2 tbspoon.

Derivatives of Hollandaise sauce:

BEARNAISE: hollandaise + chopped tarragon+ chervil (chopped) + Brunoise of shallots.

CHORON – Tomato puree + béarnaise sauce

FOYOT – Hollandaise + Meat Glaze

MALTAISE – Zest and juice of blood orange + Hollandaise

MOUSSELINE – Whipped cream + Hollandaise

NOISETTE - Nut brown butter + Hollandaise sauce

Correcting a curdled sauce –

- Place a small amount of boiling water in to clean bowl. Gradually whisk the curdled mixture on to the water.
- Place flesh egg yolk into clean bowl. Gradually whisk the curdled mixture onto the yolks over double boiler (baine marie)

MAYONNAISE SAUCE –

Mayonnaise is an emulsified sauce. An emulsified sauce is formed when two liquids that would not ordinarily form a stable mixture are forced together and held in suspension. To make mayonnaise oil is whisked together with a small amount of vinegar (it is the water in the vinegar that doesn't normally mixed with oil). To prevent oil droplets from regrouping an emulsifier is added. For mayonnaise, the emulsifier is lecithin, a protein found in egg yolk. (The acid is the vinegar also helps to form the emulsion)

To prepare mayonnaise, first separate the egg yolk and white. Collect the yolk in a cleaned bowl. Add mustard powder, salt and white pepper powder and mix well. Add refined oil drop by drop and keep on whisking in a uniform motion in the same direction. Gradually the emulsion will form. Whenever consistency is to be adjusted, add lemon juice or vinegar. Preserve in refrigerated condition.

Recipe of mayonnaise sauce – Egg yolk- 8 nos , Refined oil – 1 lt, Vinegar- 10 ml , Mustard powder- a pinch , Salt –TT, Lemon juice – 1 no

Reasons for curdling mayonnaise:

- If it is exposed near heat like flame or sunlight
- If the container and the whisk is not perfectly cleaned
- If oil is not added carefully drop by drop.
- If whisking is done at randomly.
- If the egg is just taken out from freeze but not thawed.
- If proper ratio of oil and egg yolk is not followed.

Correcting curdled mayonnaise -

- In a cleaned bowl put a spoonful of hot water and a pinch of mustard powder, mix well. Drop by drop add the curdled mayonnaise in it and keep on mixing. It will be rectified.
- In a cleaned bowl take fresh mayonnaise and add drop by drop add the curdled mayonnaise in it. Keep on mixing. It will get rectified
- In a cleaned bowl, take fresh egg yolk, drop by drop add the curdled mayonnaise in it. Keep on mixing. It will get rectified

Derivatives of mayonnaise sauce:

TARTARE – mayonnaise + gherkin+ caper+ shallots + parsley

COCKTAIL SAUCE – mayonnaise sauce + tomato ketchup + w. sauce+ Tabasco sauce + cream + lemon juice

SAUCE VERTE – mayonnaise + puree of (blanched herbs+ spinach+ parsley+ chervil+ tarragon), passed through a fine sieve

AIOLI – mayonnaise + finely chopped garlic + lemon juice

VINCENT – equal amount of tartare and vert sauce mix together

REMOULADE – mayonnaise + mustard garnished with capers, parsley, gherkin, chervil, tarragon and finished with anchovy essence.

NON DERIVATIVE SAUCES ARE CLASSIFIED INTO FOUR CATEGORIES:

- Class of its own (English sauce) - apple sauce, bread sauce, cranberry sauce, Cumberland sauce, mint sauce etc.
- Proprietary sauce- Hot or cold seasoned liquid, which is served with or used in the cooking of a dish. Tomato ketchup, HP sauce, Tabasco sauce, chilly sauce, soy sauce, worcestershire sauce.
- Butter sauce: two types are there. Hot butter sauce- noisette butter, beurre meuniere, beurre noir etc. hard butter sauce –anchovy butter, garlic butter, shrimp butter, lobster butter, parsley butter etc
- Dessert sauce – apricot sauce, melba sauce, black current sauce, caramel sauce, peach sauce, pineapple sauce, chocolate sauce, custard sauce.

PROPRIETARY SAUCE :

These sauces are industrially made.

1. Soya sauce : it is the basic condiments from south east Asia and Japan. This sauce is made from soya beans, wheat, water and salt.
2. Worcestershire sauce : it is also known as LP sauce(lea and perrins sauce). Traditional w. sauce is thin, dark brown and pungent, with visible sediment.
3. Barbeque sauce : it was originated in USA. It is used in marination and dipping sauce.
4. Ketchup : commercial ketchup is like smooth tomato sauce, and it is highly seasoned.
5. Tobasco sauce : the chilli or hot red pepper is the principal ingredients of commercially prepared hot sauce.

CONTEMPORARY SAUCES :

Today's chefs are responding to demands for lighter sauces that are simpler, less rich and more easily prepared than those of past.

1. Pesto sauce : it is popular sauce from Italy. Pesto means a paste and is popularly made with basil.
2. Harissa : a hot red pepper sauce from north Africa
3. Romesco sauce : this spicy red sauce from catalonia is wonderfull with grilled fish.
4. Salsa di noci : in linguria, Italy, pepared with walnut, garlic, bread crumb, olive oil, parmesan cheese, sour cream etc.

Sauces	Gravies
Mother sauces are mayonnaise, hollandaise, brown sauce, béchamel sauce, veloute sauce etc	Indian gravies are brown gravy, makhni gravy, kadhai gravy, palak gravy etc.
Mother sauces are based on meat stock/oil/fat thickened with emulsifier or a thickening agent.	Gravies are make onion, tomato and Indian spices.
No used of Indian spices	Usages of Indian spices
Lightly aromated	Highly aromated.

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CHAPTER 3

MEAT COOKERY:

- INTRODUCTION TO MEAT COOKERY
- CUTS OF BEEF/VEAL
- CUTS OF LAMB/MUTTON
- CUTS OF PORK
- VARIETIES OF MEATS (OFFALS)
- POULTRY

Meats are generally divided into two categories:

1. White Meat: Veal, Pork and Poultry.
2. Red Meat: Beef, Mutton, Lamb

Composition

The tenderness of meat depends upon the age, feeding of the animals, hanging and preparation of killing of the animal. The fat present in the muscle structure has an effect on the tenderness and texture of the meat. Skeletal muscles are made up of the fibres which are composed of the proteins MYOSIN (insoluble in water but are soluble in salty solutions) and ALBUMIN (soluble in both the solution). The fibres are grouped together in parallel lines and are surrounded by the sheaths of heavier connective tissues.

There are two kinds of connective tissues.

1. COLLAGEN / WHITE CONNECTIVE TISSUE: Insoluble in nature but converted to gelatine by moist heat.
2. ELASTIN/ YELLOW CONNECTIVE TISSUE: Insoluble and should be discarded in the earlier stages.

In most of the cases, young flesh is sweeter and tenderer. Longer the meat is hung; stronger is its flavour owing to some chemical changes. Meat should always be hung at 2 to 5 ° C after the animal is dead, to develop the acids which tenderise the flesh and makes Rigor Mortis disappear, thus making the flesh tender and suitable for consumption.

Meat comprises of three parts:

1. Lean or flesh part: It is composed of microscopic fibres which are tube like and tapering at the ends and vary in size. These fibres are held together by the CONNECTIVE TISSUES. Fats, blood cells and nerves are found in the connective tissue. Individual fibre is made up of outer walls and the cell contents. Muscles are composed of bundles of microscopic fibre and each bundle is enclosed in a sheath of connective tissue which extends beyond the muscle to form a tendon and ligament. Tendon hold muscles to bony framework.
2. Fatty Tissue: fat globules lie embedded in a network of connective tissues. The distribution of the fatty tissue is inter and intra- muscular under the skin.
3. Bones: long shafts of the bones are composed of compact bony tissue. A center canal is filled with yellow marrow. Contain red marrow which has get blood cells.

Meat flavour depends upon

1. Age, Sex, Species and Degree of maturity when eaten.
2. Fat content: Fat should be evenly distributed throughout the body (pork and mutton are selected on the fat content)
3. Amount of sugar in the meat: Because it caramelises during cooking and improves flavour and colour.
4. MARBLINGS: It is the fat which is dispersed between the meat and the fibres of connective tissue. It helps the meat to remain moist when dry methods are applied. Meat having small amount of connective tissues should be cooked by dry methods and long cuts which require longer cooking time should be stewed or braised.

FACTORS TO MAKE MEAT TENDER

1. MOIST HEAT: With application of moist heat, white connective tissue changes to gelatin and yellow remain unaffected.
2. TENDERIZERS: Raw papaya (papain, enzyme which make meats tender and is present in papaya), vinegar, tomatoes , curds, lemon and tamarind.
3. RIPENING / AGEING: By hanging the meat in cool conditions 2-5° C to improve colour, flavour and tenderness.
4. MECHANICAL POUNDING AND GRINDING: This is done to break down the connective tissue. This process tears the connective tissue and thereby tenderizes it and makes it easy for cooking.

LAMB/MUTTON :

Lamb is the meat of a young sheep, mutton the flesh of the mature sheep or goat. Lamb usually is the flesh of animals not more than 14 months of age.

The average weight of an imported lamb is 16 kg and for mutton it is upto 25 kg. The average weight of an Indian lamb is 10 – 14 kg, for mutton, it is between 20 kg to 22 kg.

Average weight of joints and preparation of mutton :

Joints	French term	Approx weight	Method of cooking	Preparation
Leg	Gigot	3.75 kg	Roasting, braising	Roast leg.
Shoulder	L'épaule	3.5 kg	Roasting, stewing	Ballotine
Breast	Poitrine	1.5 kg	Boiling, stewing	White stew
Middle neck	Cote decouverte	1.75 kg	Stewing	White stew.
Scrag end	Cou	1 kg	Boiling	Broth
Best end	Carre	1.25 kg	Roasting, grilling, sautéing.	
Cutlets	Cotelette	100 gm	Grilling, frying	
Saddle(2 loins joined)	Selle	3.5 kg	Grilling roasting, braising etc.	
Loin	Longe			
Kidney	Rognons			



Diagram of mutton :

How to select / judge the quality of lamb :

1. Carcass should be compact and evenly fleshed, having an even coat of fat.

- Lean flesh is firm and of a pleasing, dull red color and of a fine texture of grain.
- Fat should be evenly distributed, hard, brittle, flaky and clear white color.
- The bones are porous in young animals, as age progresses, they are smooth, white and brittle.

Pork :

The flesh of pig is called pork. Most pork comes from animals not more than a year old. It generally has more fat and other meat. A suckling pig is about 5-6 weeks old.

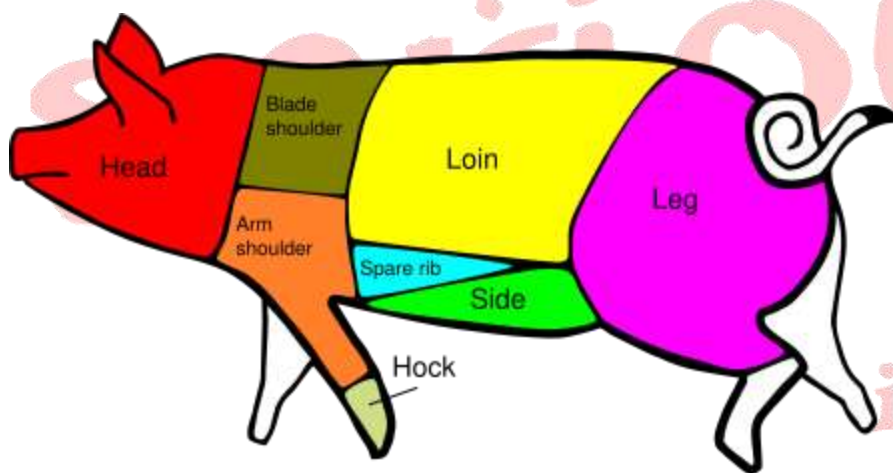
Ham is taken from the hind leg of the pig, preserved by curing or pickling in brine, then dried and smoked. Ham is prepared from fresh pork meat.

Gammon is taken from the leg of pig that has been reared for bacon and the meat is cured. Gammon is mild and doesn't keep as long as hams. Bacon is obtained from the sides and back of a baconer (a pig reared and specially fed to yield bacon). The bacon is acquired by taking the meat and preserving the meat by salting.

Average weight of joints and preparation of pork :

Joints	French term	Approx weight	Method of cooking	Preparation
Head	Tete	3.5 kg	Boiling	-
Trotters	Pied		Boiling, frying	-
Leg	Cuissot	4.5 kg	Roasted, boiled, braised.	Pickling
Shoulder	Epaule	3 kg	Boiled and roasted	Sausage
Spare ribs	Basse cote	1.75 kg	Stewing , braising	Stew
Loin	Longe	5.25 kg	Roasting, braising, poeling etc.	-
Belly	Poitrine	1.75 kg	Boiling, braising	-

Diagram of pork :



How to select / judge the quality of pork :

- Lean flesh should be pale pink changing rose as the animal matures.

2. The fat is white, firm, smooth and not excessive
3. Bones must be small, slender and pinkish.
4. The fat ought to be white, smooth and not excessive in proportion to the bacon.
5. The lean meat should be deep pink in colour and firm.

Beef :

Beef and veal are got from the bovine animals and they are classified by their ages:

Veal – flesh of calf (less than 3 months of age) which lives on milk.

Calves- the animals are from 3-8 months old.

Beef – the meat is taken when the animal is above 8 months.

Beef is the flesh of steers, heifers, cows, bulls and stags. The age and sex has an influence on the taste and quality of meat.

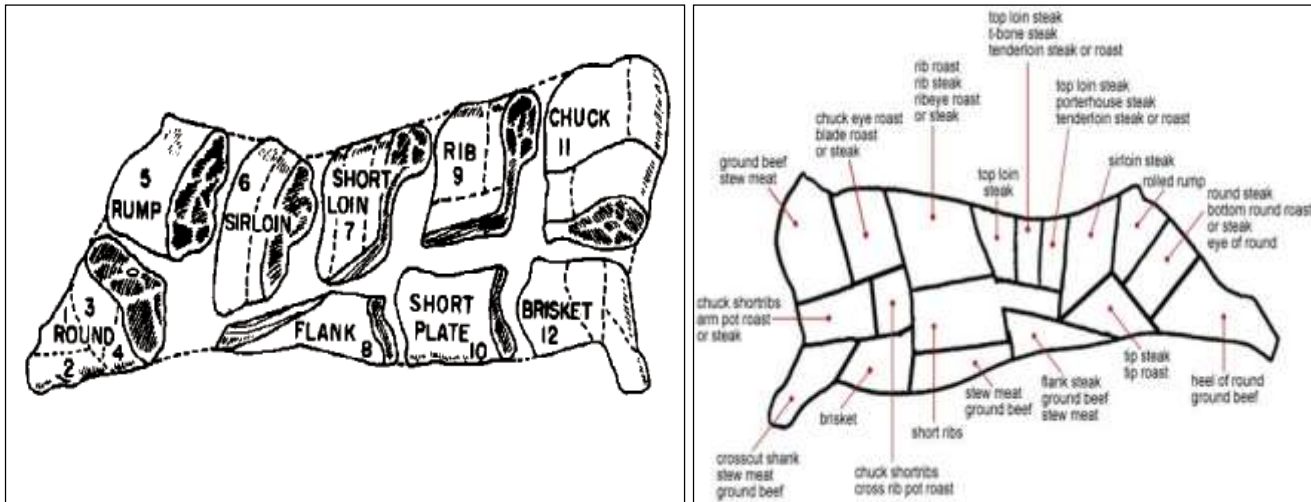
Cuts of beef :

Average weight of joints and preparation of beef :

Joints	French term	Approx weight	Method of cooking	Preparation
Sticking piece	Collier	10.5 kg	Stewing	Pies
Chuck ribs	Cotes	5 kg	Braising and stewing	Beef tea, pies
Mid ribs	Cotes	8 kg	Roasting and braising	--
Fore ribs	Cotes	6.75 kg	Roasting and braising	--
Wing ribs	Cotes de boeuf	6 kg	Roasting	-
Sirloin / half saddle	Alloyau de boeuf	9.5 kg	Roasting and poeling	--
Boned sirloin	contre		Roasting , grilling	
Fillet	Fillet de boeuf	3 kg	Roasting and grilling	
Rump	Culotte de boeuf	7 kg	Roasting and braising	
Thick flank	Tranche	6.5 kg	Stewing, braising	
Silver side	Gite a la noix	10 kg	Braising, pickling	
Topside	Tranche tendre	7.5 kg	Braising, stewing	
Thin flank	Bavette	4 kg	Stewing	
Plate	Poitrine	5 kg	Stewing	
Brisket	Poitrine	6.5 kg	Boiling, stewing	
Leg of mutton	Talon du collier	11 kg	Pickling	
Shin and shank	Jambe	9 kg	Boiling	

Diagram of beef cuts :

BEEF CUTS



Parts and Uses

WHAT IS A STEAK ?

There is as such no exact definition of steak, but the Larousse Gastronomique says that steak is nothing but a slice of meat which may be with the bone or without the bone and which is cut from any part of the animal. It says that ideally a steak should weigh between 100-200grams but exceptions are there and that it can be grilled, broiled or fried. Introduced to France after the Battle of Waterloo by the occupying English forces, steak was originally cut from the fillet, sirloin, or rump. It then became customary to cut steaks from all roasting joints and subsequently from braising joints as well.

TYPES OF STEAKS :-

Ball Steak - Boneless slice cut from the rib.

Bola Steak - Looks like a piece cut from the fillet but is actually from the leg of mutton cut.

Blade Steak - This is a steak cut from the shoulder of a beef and as such it not as tender as the other steaks. It is also has a very similar resemblance to Arm Steak which is also cut from the shoulder.

Butterfly Steaks - These are infact one inch thick tournedos cut through to leave only a small amount of connecting meat and then opened, flattened and batted to form two wings.

Carpet Bag Steak - Sirloin or rump steak with a pocket cut into it, filled with fresh or smoked oyster and sewn up before grilling.

Chateaubriand - the Chateaubriand is a double fillet steak cut from the head of the fillet, i.e. the thickest end which passes through the sirloin into the rump. It is 3- 10 cm(1.5 - 4") thick. Average weight is 300 - 1000gm. 2-4 portions from a fillet. It is more frequently grilled and is sent to the table with an accompanying portion of grilled prime suet.

Club steak - Slice cut from a wing rib.

Clochester steak - Stuff a fillet steak with oysters wrapped in bacon and grill it.

Cube Steak - A cube steak may be produced from any boneless meat from the beef carcass which is reasonably free of membranous tissue, tendons and ligaments. The meat must be made into cube steaks through machines designed for this purpose. Cubed steak must be reasonably uniform in shape practically square, round or oval. After cubing surface fat on the edge of the cube steak must not exceed 0.5 inch in width at any one point when measured from the edge of the lean. Surface and seam fat must not cover more than 15% of the total area on either side of the steak.

Delmonico Steak - Also known as the "Rib Eye Steak" this steak comes from the rib of the beef. It is in fact cut from a boned out rib.

Double Entrecote Steak - This steak comes from the sirloin of the beef and are 2" thick trimmed slices each weighing approximately 300gms (12oz).

Entrecote Steak - The lean, tender eye muscle from a boneless sirloin. Usually 1 - 1.5" thick slices and weigh 150gms (6oz). It is one of the most popular steaks as it can be cut to uniform weight and size.

Feather steak - A slice cut from the skirt of beef.

Fillet Steaks - These as the name goes are cut from the fillet of the beef. One fillet yields approximately 4 steaks each weighing about 100 - 150gms (4 - 6 oz) and are 1.5 - 2cm (0.75 - 1") thick.

Hamburg Steaks - These are finely mixed minced beef with chopped cooked onion and egg, moulded as a flat round cake. They are used as patties for the ever famous "Hamburgers".

Knuckle Steaks - Knuckle steaks are cut from the knuckle of the beef except that the knuckle cover facing the flank meat and the membranous tissue must be removed and excluded. The knuckle may be separated lengthwise into sections to accommodate the cutting of specified portion size steaks.

Mignon Steaks - It is cut from the tail or the end of a fillet and is best grilled or sautéed. They are usually slit open lengthwise and are also made into kebabs.

Minute Steak - These are 1 cm(0.5") thick slices from the sirloin which are flattened with a cutlet bat dipped in water, making as them thin as possible and then trimming them to give them proper shape. The name derives from the fact that it takes not more than a minute to cook these steaks because they are paper thin.

Porterhouse Steaks - A steak cut from the chump end of the sirloin, containing part of the fillet. Usually 0.75 -1 inch thick it is excellent for grilling, especially over charcoal. It is cut including the bone from the rib end of the sirloin. The diameter of the steak should not be less than 1.25" and lengthwise the steak should not exceed 4 inch. It resembles a large chop.

Rump Steak - As the name goes this steak is cut from the rump of a beef . Some people consider this to be the best flavoured steak, excellent for grilling, or frying with onions. This steak should have 0.25" fat on the outside edge and no gristle.

Skirt Steak - This steak also comes from the rump of the beef. The whole steak weighs 2lb(1kg) so it can be served whole as well as sliced diagonally into small steaks for individual portions.

T- Bone Steak - A T-bone steak is prepared from the sirloin and includes both the sirloin and the fillet. This steak is cut on the bone, from between the chump end and the wing rib. It is usually cut to serve two portions, but may also be cut out as individual steaks. Usually 1" thick.

Tournedos - The etymology of the word Tournedo which appeared around 1864 is as follows: In the 17th century the stalls backing onto (tournant le dos) the central alleys of the fresh fish pavilion, in the Paris Halles, were assigned fish of doubtful freshness. By analogy, the name Tournedos was given to pieces of beef that were kept for a few days in storage. An indiscretion is said to have led to the word's appearing on a restaurant menu one day; the public not knowing its origin, adopted it. A tournedos is a slice of beef in fact it is a small round slice of beef 2cm (1") thick cut from the heart or the middle end of a beef fillet. They usually weigh about 100grams each (4oz).

Standards for doneness

Meat	Color	Description	Internal temperature
Beef	Rare	Rose red in the center, pinkish towards the outer portion, shading into a dark gray, brown crust, juices bright red.	60deg C
	Medium	Light pink, juice light pink	70deg C
	Well done	Brownish gray in center and dark crust	80deg C
Lamb	Medium	Light pink, juice light pink	70 deg C
	Well done	Center brownish gray, texture firm but not crumbly juices clear	80-82deg C
Veal	Well done	Firm not crumbly juices clear, light pink	74 deg C
Pork rib and loin	Well done	Center grayish white	77deg C

Pork shoulder, chop, & ham	Well done	Center grayish white	85 deg C
Chicken (roast)			85deg C
Turkey roast			90 deg C
Bone less chicken			77-79 deg C

Poultry

Chicken is far most widely consumed type of poultry. Its neutral flavor readily absorbs flavors from the seasonings, marinades and sauces making it great for many different dishes.

Cuts of chicken:

- Wings
- Winglets
- Thigh
- Drumstick
- Carcass

Quality:

- Plump breast
- Pliable breast bone
- Flesh firm
- White skin with bluish tint
- Smooth legs with small scales

NOTE :

Rigor mortis: after the animals are killed, the muscles become stiff and hard. This is due to the clotting of the MYOSIN (a protein present in meat) which is converted to lactic acid. This condition is called RIGORMORTIS and has its importance in food production because of the fact that the meats are not cooked while they are in the state of Rigor Mortis. When the meats are held for certain time duration at a temperature of 2 to 5° C for 12 to 24 for hours, the Rigor Mortis disappears making the meat tenderer. Veal and Pork should not be hung. Veal due to lack of fat results in excessive drying and pork has high fat content which goes rancid if hung for a longer time.

RIPENING OF MEATS This term is applied to the changes which occur in the meat as they are hung in the cold storage. These changes are due to enzymatic action which makes the meat juicy and improve the flavour and tenderness to long ripening time, also result in strong bad flavour / odours. Ageing does not improve veal and pork but beef and lamb are generally ripened. Veal due to lack of fat results in excessive drying and pork has high fat content which goes rancid if hung for a longer time.

Marbling is intra muscular fat tissue that contributes to meat quality. Marbling causes the meat to be firm and to reflect a desirable colour of the lean meat.

Offals (Abats de boucherie) : The edible internal parts and some external extremities of an animal, which are removed before the carcass is cut up. Offal, also known as the 'fifth quarter', is divided into white and red categories.

⊖ White offal - bone marrow, animelles (testicles) , brain, mesentry (a membrane which holds the intestines together) , feet, sweetbreads, stomach and head. After scalding or plucking, these parts are an ivory colour. (Beef and pork cheeks are classified as meats).

⊖ Red offal - heart, liver tongue, lungs, spleen and kidneys.

Offals, particularly intestines and tripe, is generally regarded as inferior meat . Only kidneys, liver, calves sweetbreads, lamb's brains, and animelles have any gastronomic importance.

CHAPTER 4

FISH COOKERY

- A. Introduction to fish cookery
- B. Classification of fish with examples
- C. Cuts of fish with menu examples
- D. Selection of fish and shell fish
- E. Cooking of fish (effects of heat)

Exam - Exam -Classify fish with examples. 5

Exam - List and draw 8 cuts of fish and explain each one in single sentence. 10

Exam –exam -What are the factors to remember when buying fish and shell fish?

Exam- what are the quality points to be checked in the selection of fish and shell fish. 5

What is court bouillon? What is it used for.

What is fish fumet?

“Deep frying and poaching are common methods of cooking fish”. Justify.

List five examples of shell fish.

Explain preservation of fish.

xii. A cut of fish on the bone from flat fish_____.

FISH AND SHELL FISH

FISH -Fish are aquatic vertebrates with fins for swimming and gills for breathing.

Fish is a high protein food, supplying on an average a little more than 5 gm of protein/ edible ounce (1oz= 25 gm)

SEAFOOD – A collective term for shellfish and other small edible marine animals like crabs, mussels, shrimps, winkles, sea urchin etc. Seafood may be served as a main course or as a special appetizer course featuring delicacies like smoked salmon, oysters, baked clams, fried calamari etc which are often served accompanied by butter and rye bread or served raw on a bed of ice.

CLASSIFICATION OF FISH:

- FIN FISH –
 1. white fish (contains fats only on liver and there are mainly flat fish except cod)
 2. oily fish (contains fat all over the body and these are all round fish)
- SHELL FISH
 1. mollusks
 - univalves
 - bivalves
 2. crustaceans
 3. cephalopods

FIN FISH: are vertebrates and have skin and scales which cover their body. They move with the help of fins.

They are subdivided into 1.lean / white fish (0.5 % - 4% of fat), the most numerous which includes all the cods family (haddock, whiting etc) and white flat fish (plaice, sole etc) and the perch family (bass, red mullet and skate etc). Most of these fishes are deep sea fishes. 2. Oily fish : the amount of fat varies from 4%- 20 %, these fishes are often pigmented and tend to be surface fish (lives in the surface level of water). For example sardine, mackerel, herring, trout (fat content of these fishes lie between 4%- 10%), tuna (13% fat), salmon (12% fat), moray and lamprey (13%- 17% fat)

SHELL FISH: as the name denotes have a shell covering the body. They are invertebrates and subdivided into 1. Molluscs – which are again subdivided into univalves- they are recognized by the characteristics spiral formation on their shell, which are not divided into halves. Ex- winkles.

Bivalves-which have two distinctly separate shells, joined by a hinge like membrane. The movement of the shell is controlled by strong muscles when the muscles relaxes, the two shell of the shell fall open. The shell also open, when the organism dies, does exposing the content of the shell to contamination from outside, resulting in quick decomposition. For example clams, cockles, mussels, oysters, scallops etc.

The shells of mollusks increase at the rate of 1 ring per year to allow for the growth of the organism. The age of mollusk can be estimated by the numbers of rings on the shell.

2. Crustaceans: these arthropods(a group of invertebrates with a shell and paired legs) having a segmented, crust like shell and most of them are marine. The marine crustaceans includes lobster, langoustes, crabs, shrimp etc. the only fresh water crustaceans used in cookery is the crayfish.

The shell of the crustaceans do not go with the fish, unlike those of the molluscs, but are shed each year with a new one forming to suit their size.

3. Cephalopods: The word literally means “head with foot”.

Buried in the flesh of all cephalopods is the duplicate skeleton which is usually transparent and found in the form of – a long pen in a squid, an oval cuttlebone or a hard beak of an octopus.

Cephalopods are marine animals which do not have any backbone also termed as invertebrates.

Quick cooking over high heat or long slow cooking is the rule for cephalopods.

Examples of cephalopods are - octopus, squid, cuttlefish and jellyfish.

Squids are considered to be more sweet and tender than cuttlefish.

QUALITIES FOR A GOOD FISH –

- Fish should look and smell fresh.
- The scales should be intact, firmly adhering and shiny.
- The eyes should be full and bulging but not sunken.
- The gills of the fish should be bright red.
- When poked or pressed with fingers the flesh should feel firm and resilient (resisting, when poked it comes back to its original shape.)
- Guts (organs specially related to digestive system) – belly should not be torn, sagging or swollen. When the fish is open, the guts should be smooth and clean.
- To taste a cut piece of fish, press down with a finger and if impression is left then the fish is stale. Raw flesh should not come away from the bones as it is the sign of fish deterioration.

HOW TO SELECT SHELL FISH : They should be bought in season as far as possible. They should medium sized and of good weight. It is best to buy them alive, particularly oyster, crabs and lobsters.

If they are died the following precautions should be taken-

- The claws of crabs should be springy and not hanging down.
- The eyes should be bright.
- The tail of lobsters should spring back when stretched out.
- Shrimp and prawns must be crisp
- Oyster shells should be tightly closed.

STORING FISH –

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- Fresh fish should be stored for as short a time as possible after purchase. Fish that has been freshly caught is the best for cooking.
- Ideal temperature for storage of fresh fish is 0°C. Ideal temperature for fish walk-in refrigerator is (-2) °C– 0°C.
- Whole fish will keep fresh for a longer time if it is gutted (removing the intestines) as enzymes present in the stomach accelerate decay.
- Fish should be stored tightly wrapped in a cling film and covered with ice.
- Cut fish should never come in contact directly with ice as it discolors the flesh and draws out the juices.

CUTS OF FISH

1. DARNE – Steak or slice of a round fish cut on the bone.
2. TRONCON – Steak or slice of a flat fish cut on the bone.
3. PAUPIETTE - Thin slice of a fish fillet which is usually stuffed and rolled like a cylinder.
4. FILLET – Usually a boneless cut of fish from one entire side of a fish.
5. GOUJONS - Fillet of fish cut into strips of 6 cm x 1 cm x 1 cm about the size of a finger.
6. GOUJONETTES – Thinner and smaller version of fish fingers. Cocktail size fish fingers.
7. CORNET – Thin slice of a fish fillet usually triangular in shape which is rolled to form a cone.
8. PLIE– Fillet which is flattened and folded into two.
9. SUPREME – A large fillet of fish cut on the slant from a large round or flat fish.
10. MEDALLIONS – A boneless round shaped steak or slice of fish fillet usually cut from a large fillet of fish.
11. DELICE – Menu term denoting a folded fillet.

MAIN COURSES OF FISH & SHELLFISH-

DEEP FRIED

FISH 'N CHIPS – A simple preparation made with firm textured fishes such as cod and sea bass which are traditionally dipped in a batter of flour, egg, salt, baking powder and milk and deep fried. These are served with long lengthwise potato fingers or chips or French fries, lemon wedges and fried parsley. Traditionally this British snack is served in cones of newspaper sprinkled with vinegar. In India fish and chips commonly denotes fillets of fish which are coated with breadcrumb and deep fried.

FISH ORLY – Fish fillet is marinated in lemon juice, oil, chopped parsley and salt. A batter is made with flour, stiffly beaten egg white, beer and seasoning. The fish is dipped in the batter and deep fired, served with fried parsley and tomato sauce or tomato ketchup.

FISH COLBERT – Fillet of fish coated with breadcrumb and deep fried served with slices of lemon and Maitre d'hotel butter.

FRITTO MISTO – An Italian seafood and fish preparation which is usually served as an appetizer and consists of small bite sized pieces of fish, squid, oysters, and other seafood which is crumbed and deep fried usually served with lemon, parsley and a roasted bell pepper sauce.

SICILIENNE – Same as fish Colbert but served with brown butter, capers, and chopped anchovies and sieved hard boiled egg.

SHALLOW FRIED

SOLE MEUNIERE – The fish is marinated, patted with flour and shallow fried in hot butter. Served with slices of lemon and sprinkled with lemon juice, hot brown butter and chopped parsley at the last moment.

BELLE MEUNIERE – Very similar to meuniere but garnished with blanched tomatoes, sliced sautéed mushrooms and few grains of caviar.

GRENOBLOISE – Fish meuniere garnished with segments of lemon and capers.

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POACHED

RED SNAPPER DUGLERE – Fish is poached in white wine and fish fumet. The cooking liquid is strained and reduced to a sauce like consistency with sautéed chopped garlic, dices of onion, blanched tomatoes and chopped parsley. At the last moment cream is added to the sauce and the sauce is poured over the poached fish.

SOLE VERONIQUE – Fish is poached in fumet and served with blanched and peeled white grapes and a fish veloute is made with the poaching liquor.

BEKTI PRINCESS – Poached fillet of Bekti served with fish veloute made with the poaching liquid and white wine. It is garnished with slices of sautéed mushroom and blanched asparagus tips.

BAKED

SALMON COULIBIAC – Salmon fillet arranged over a layer of cooked rice, chopped hard boiled eggs and duxelles enclosed or covered with brioche dough, baked and served like a pie.

SOLE NICOISE – Marinated fillet of sole placed on a bed of tomato concasse and baked in a hot oven. Served with a garnish of black olives, anchovy fillets and slices of lemon.

FISH STEWS

BOUILLABAISSE – is the most famous of all Mediterranean fish soups. This originated in Marseilles region in the south of France. It is a rich and colourful mixture of fish and shellfish which is flavoured with tomatoes, saffron and rinds of oranges and usually garnished with chopped parsley. Traditional bouillabaisse is always made with rock fish, red mullet, monk fish, squid and small crabs.

MATELOTE – A French fish stew made with red or white wine with aromatic flavourings. The term is usually applied to stews made with freshwater fish such as eel, trout, pike etc. All matelotes are usually garnished with small onions, mushrooms, crisp bacon, fried crouton of bread and dices of crayfish meat.

SHELLFISH MAIN COURSES –

PRAWN NEWBURG – This dish was first invented by Mr. Wenburg, the Executive Chef at Delmonicos the famous restaurant in New York. Newburg sauce is made by sautéing large pieces of prawn in a pan with butter, garlic, onion, tomatoes and white wine. After the prawn is cooked, the sauce is strained and made into a puree with the addition of cream. Fish fumet and sherry are added towards the end and the sauce is poured over the prawns and served hot.

LOBSTER THERMIDOR – The lobster is cut lengthwise into two halves, seasoned with salt, oil, paprika and roasted in the oven. A sauce is prepared by sautéing shallots in butter to which roasting juices from the lobster, fish fumet, and white wine are added. The sauce is then thickened with béchamel sauce and is finished by adding English mustard powder and grated parmesan cheese. This sauce is poured over lobster halves and served with chopped parsley.

COURT BOUILLON:

To preserve and enhance the delicate flavor of fish, the liquor in which they are poached is prepared with care. The poaching liquor is called court bouillon. There are different types of court bouillon

- White court bouillon (with milk)
- Ordinary court bouillon (with lemon/ vinegar)
- White wine court bouillon
- Red wine court bouillon

The wine should be chosen for its fruity flavor to impart a special delicate flavor. The amount of wine can be increased if the amount of water is reduced by the same quantity. Red wine is used especially if the court bouillon is used to make an aspic jelly, which will then have a pale pink color. Court bouillons with white wine are used for cooking shell

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fish and fish of all types. Court bouillon with red wine is used for cooking lean white fleshed fish such as bass, which are served cold.

Recipe of court bouillon:

Water – 1 lt, Salt (coarse sea salt) - 15 gm , Wine / vinegar – 75 ml , Carrot – 60 gm (sliced)

Bay leaves – 2 nos , Parsley stalks- 3 nos , Peppercorn – 6 nos , Thyme – 1 sprigs

ACCOMPANIMENTS OF FISH

FISH	POTATOES	VEGETABLES	ACCOMPANIMENTS
Grilled/ Fried	Fried/ Sautéed	Green salad, Cole Slaw, Carrot, Onion and Cauliflower.	Hollandaise sauce, Tartar Sauce, Slices of lemon, Parsley, Brown Butter, Caper Sauce etc.
Boiled/ Steamed	Boiled in jackets/ Mashed	Green salad, Cucumber salad, Onions, Cauliflower, Beans & tomatoes.	Hollandaise Sauce, Horseradish sauce, Parsley, Eggs, fennel etc.
Baked	Baked/ Boiled or Sautéed	Green salad, Carrots, Beans, Tomatoes, Spinach, Celery, Onion, Cauliflower.	Hollandaise Sauce, Mustard Sauce, Tartar Sauce, Caper Sauce, Lemon, Parsley Butter

Why so serious?

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CHAPTER 5

RICE, CEREALS & PULSES

- A. Introduction
- B. Classification and identification
- C. Cooking of rice, cereals and pulses
- D. Varieties of rice and other cereals

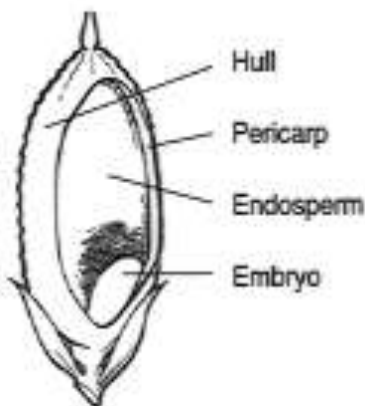
RICE

INTRODUCTION:

Rice is the staple food for the Asians. 50 % of the world production is contributed by the India and china. In India the states which grow rice are orissa, Andhra Pradesh, Karnataka, west Bengal, kerala, tamil nadu, gujrat, maharastra, Punjab and assam.

Rice is mainly cultivated in the monsoon in the land of burma, japan, Thailand, Indonesia and Vietnam. Rice is lesser extent is cultivated in America and Australia.

Rice grain



It would be hard to overestimate the importance of grain in life of human beings. They are seeds; compact packages that contain a plant's embryo with enough food for them to develop. As they are concentrated sources of protein and carbohydrate and can be stored for a long time, the edible seeds have played an important role in human nutrition and cultural evolution.

There are about 2500 types of rice, some with red, blue or even purple coloration.

Growth and cultivation:

The growth of rice is different from the other cereals. It is capable of being grown in standing water or on dry lands unlike other cereals known as upland rice and account for 15% of rice cultivation. It can be grown in hot and wet climate of heavy rainfall (120-200 cm)

Processing: rice before milling with presence of husk is called rough rice (paddy) and later it is called raw rice (brown rice)

Structure: unlike wheat there is one other coating called husk. The other parts are – bran made up of numbers of layers constituent of vitamin and cellulose. Testa – adds color to the grain. Aleurone- covering of endosperm. Endosperm – 75%-80% of whole grain made up of starch, protein and minerals. Germ- embryo of grain rich in fat, protein and minerals.

Composition – carbohydrate -72%-77%, Protein- 7% - 8%, fat – 1%, and trace of minerals and vitamin B.

TYPES OF RICE

There are two main factors that determine the type of rice available to the consumer.

- A) The size and shape of the grain:
 - a) Short grain rice (Carolina rice): This is short, plump grain which sticks on cooking.
 - b) Medium grain: Slightly longer than short grain and narrow. Similar to short grain on cooking.
 - c) Long grain (Patna rice): The grain is 4 to 5 times as wide as the thickness of the grain. On cooking the grains tend to remain dry and separate and fluffy.

B) The type of processing of the grain:

a) Regular milled: This is the rice that has been cleaned but has not been subjected to any cooking process. This can be divided as brown, milled unpolished and polished rice.

b) Converted or parboiled rice; Here the whole grain is steeped in water, steamed and dried before milling. This partial pre cooking makes milling easier and the rice more nutritive and rich in thiamin which prevents beri-beri.

There are many sub varieties of rice depending upon the above mentioned processes; the important ones are

i) Brown Italian rice

ii) Basmati rice: The most famous and aromatic rice, grown in the foothills of the Himalayas, it is narrow, long grained rice

iii) Glutinous rice: This is completely gluten free and widely used in Chinese cooking. In this a black and a white variety are available.

iv) Italian rice: A fat short grained rice, very good for risotto's.

v) Pudding rice: A short grain strain of polished rice which turns mushy when cooked.

WILD RICE

This distant cousin of rice is a native of the great lakes region of North America, where it grows in shallow lakes and marshes. Originally gathered by hand from the wild it is no more truly wild as nowadays it is being cultivated in fields. In spite of this the rice is still very expensive.

This rice is processed more elaborately than normal rice. It is first fermented for a week or two to develop flavour and ease hulling and then heated gently to partly gelatinize starch and cause some browning. Wild rice contains more proteins than ordinary rice and is a favourite of the gourmet chef.

RICE -THE INDIAN SUBCONTINENT

Rice has been an integral part of Indian culture, tradition and culinary heritage since the dawn of time. It is a must in many prayer ceremonies and festivals and without it Indian food will be incomplete in any part of the country. As India has tropical and a sub tropical climate it is ideally suited for the cultivation of rice and in most of the rice growing areas we can find three crops being taken in a year.

Rice is grown almost all over the country right from Jammu and Kashmir down to Tamil Nadu. It was staple food of the people in the states of J and K, Kerala, Bengal, Andhra Pradesh, Tamil Nadu and the 7 eastern states and this was where the bulk of the rice was grown till the Green Revolution took place and, Punjab and Haryana came into the picture in a big way.

There are two types of rice being grown in India:

A) The long grain rice.

B) Medium grain rice.

C) The short grain rice.

Long grain rice: This is grown mainly in the northern and the south eastern part of the country and is used for the many renowned rice recipes of the country. This is available in the aromatic and the non aromatic types. The aromatic rice is grown extensively in the foothills of the Himalayas and in the state of Andhra where it is used for the famous Biryani. The best of the aromatic rice comes from Dehradun and this is famous the world over.

Short grain rice: This is cultivated mainly in the 7 eastern states and the southern part of India. These parts of the country have thin gravy as a part of their food and this sticky variety of rice goes well with it. The most famous of this is the Nellore rice which is used for a variety of South Indian Breakfast and Fast food items like Aapam, Dosas etc. There

is another peculiar variety of this rice grown in Assam which is red in colour. This rice is used for preparing auspicious meals.

CULINARY USES OF RICE

Rice has been a very important food grain along with wheat, in helping man to change over from the nomadic stage to the agriculturist. It has a very varied use as a food commodity. Rice is consumed all over the middle east, the orient and in parts of Europe. It is used both in hot and cold foods.

Hot Preparations: All over the world in whichever country we go to we can find rice being prepared as a accompaniment or a meal in itself. The most famous preparations of rice over the world are the Rissotto from Italy, the Paella from Spain, the pulaos and the biryanis from India and the various fried rice dishes from China.

India: In India, as we have already discussed rice plays a major role in food. In the northern part the people prefer the long grain rice which stays separate and fluffy on cooking and use it to accompany the thicker gravies and prepare the Biryani of which the Sofyani Biryani is a fine example while kheer is renowned dessert.

While in the southern part the short grain rice which is the stickier variety, is preferred as the food accompaniment and to prepare various rice based dishes due to the high content of waxy starch molecules which give a better binding for the product required.

Cold preparations: Rice is also used to prepare a wide variety of cold food of which the desserts are a major part.

A variety of cold rice based sweets can be offered on menus. They are typically substantial because of their starch content which is often enriched with cream and egg yolk. However interesting combinations using fruits and glazes result in interesting combinations.

Essentially the ability of short grain rice to absorb liquid, to act as a cohesive agent and to undergo the process of starch gelatinization on cooking provides the setting quality associated with cold rice based desserts, additional things like egg, cream, sugar and essences act to enrich and flavor and in case of sugar also to soften the texture of the starch gel.

BYPRODUCTS OF RICE:

- 1) Rice flour: This is clean milled rice, usually broken rice that has been ground and sifted into flour. It is used as a thickening agent and for making special cakes. It is also used for a variety of south Indian fast food snacks.
- 2) Rice Cones: This is coarse flour and is used in the bakery trade for dusting yeast products to prevent them from sticking. Another use is for making the famous Indian dessert called Firnee.
- 3) Rice Paper: An edible paper like base for macaroons and sweets.
- 4) Puffed Rice: A byproduct of rice similar to popcorn which is used for making fast food products in India.
- 5) Pressed rice – rice is pressed through roller and then milled.

Storage of rice:

Should be stored in a dry place away from moisture at cool temperature. Longer storage neem leaves and boric powder can be used.

Cooking of rice: Drainage method Absorption method

Cereal: Any member of the grass family (Gramineae) which produced edible grains usable as food by humans and livestock. Common cereals are rice, wheat, barley, oats, maize (corn), rye, and certain millets, with corn, rice, and wheat being the most important.

Four general groups of foods are prepared from the cereal grains.

- (1) Baked products, made from flour or meal, include breads, pastries, pancakes, cookies, and cakes.

(2) Milled grain products, made by removing the bran and usually the germ (or embryo of the seed), include polished rice, farina, wheat flour, cornmeal, hominy, corn grits, pearled barley, semolina (for macaroni products), prepared breakfast cereals, and soup, gravy, and other thickenings.

(3) Beverages such as beer and whiskey, made from fermented grain products (distilled or undistilled) and from boiled, roasted grains.

(4) Whole-grain products include rolled oats, brown rice, popcorn, shredded and puffed grains, and breakfast foods.

VARIOUS GRAINS/ CEREALS:

Corn: Corn is the only grain that is eaten fresh as vegetables.

Cornmeal: it is made by drying and grinding a special type of corn known as dent, which is yellow, white or blue. Cornmeal is often used in breads, as coating for fried foods.

Hominy: it is dried corn that has been soaked in hydrated lime. Massa harina is finely ground flour made from hominy, used for making breads and tortilla.

Grits: these are traditionally made by grinding dried hominy. These tiny white granules are used in breakfast dishes.

Rice: it is the starchy seeds of semi aquatic grass. Rice is divided into three types- long grain rice, medium grain rice and short grain rice.

Wheat: wheat is most often milled into wide ranges of flour.

- Cracked wheat – it is whole wheat kernel broken into varying coarseness.
- Bulgur- these are wheat berry that has the bran removed.
- Couscous- it is made by removing the bran and germ from durum wheat berries. it is traditionally served in south African stews.

Barley: it is one of the old culinary grains. It is used in making beers. It is used in making soups, stews and stuffing.

Buckwheat: it is not wheat not a grain. But it is included here because it is cooked in the same manner as other grains are cooked. Raw buckwheat is ground into flour, used in making pasta, breads, pancakes etc.

Oats: after rice, oat is mostly accepted whole grain product in the American diets. Used in breakfast preparations, breads and muffins.

PULSES AND LEGUMES

Legumes are next in importance to cereals as sources of human food. They contain more protein than any other vegetable product and so are nearer to animal flesh in food value.

Legumes form an important part of the Indian vegetarian meal. A combination of cereal and pulses makes a balanced diet. Legumes are dried seeds from plant which belongs to leguminosae family. They supply 22%- 25% of edible protein. Exception is soybean. It gives 40 % of edible protein.

Pulses are one of the staple foods in India, many North African countries (chick peas and broad beans) and South America (red kidney beans)

Nutritive value: it contains approx: twice as much protein as cereals and half as much protein as lean meat. Legumes are better than cereals as a source of essential amino acids. Beans and peas are low in fat and high in carbohydrate. Soybeans are exception. It contains more calcium than other legumes. They can be compared favorably with lean meat as a chief source of thiamin (vitamin B1).

One of the characteristic of pulses is their very high energy value, averaging 330 calorie/ 100 gm and very low water content compared with vegetables, which means they can be stored for longer period. Beans and lentil contains large proportion of iron. They are rich in carbohydrate (60%).

Legume composition (%):

Name	Water	Protein	Carbohydrate	Fat
Broad beans	12	25	58	1
Common moong	11	24	60	1
Soya beans	10	37	34	18
Lentil	11	25	60	1
Chickpeas	11	21	68	5
Peas	12	24	60	1

Pulses when combined with cereals form important protein sources of vegetarians and in low and medium cost balanced meals. If they are combined with wheat in proportion of 1 part pulses with 4 parts wheat, biologically first class protein is obtained.

Most of legumes contain nitrogen fixing bacteria on the roots. These bacteria's are able to utilize free atmospheric nitrogen and convert it into nitrates, thus supply nitrogenous materials which is available in these plants, not only the seeds but also all other parts of the plant. Hence they are excellent fertilizer and increase the nitrogenous content of the soil.

The distinct characteristics of pulses are that the seeds are contained in pods.

Cooking of legumes: cooking breaks the starch and alters the texture and improves the flavor thus making legume palatable. Dried beans because of their low moisture content cooks faster if they are given an initial cooking.

Different varieties commonly used are:

- Bengal gram- chana
- Black gram- urad dal
- Red gram- arhar dal, tur dal
- Green gram- moong dal
- Lentil- masoor dal
- Kidney beans – rajma
- Soyabeans
- Kabuli chana

Uses of pulses :

- Whole / split gram can be used widely for different Indian dal preparation. Eg- red gram, rajma etc.
 - Tender seeds when green can be eaten raw
 - The husk powder can be uses as stuffing. Ex- kachuri
- Different pulses can be used in making soups ex- lentil soups

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CHAPTER 6

Flour

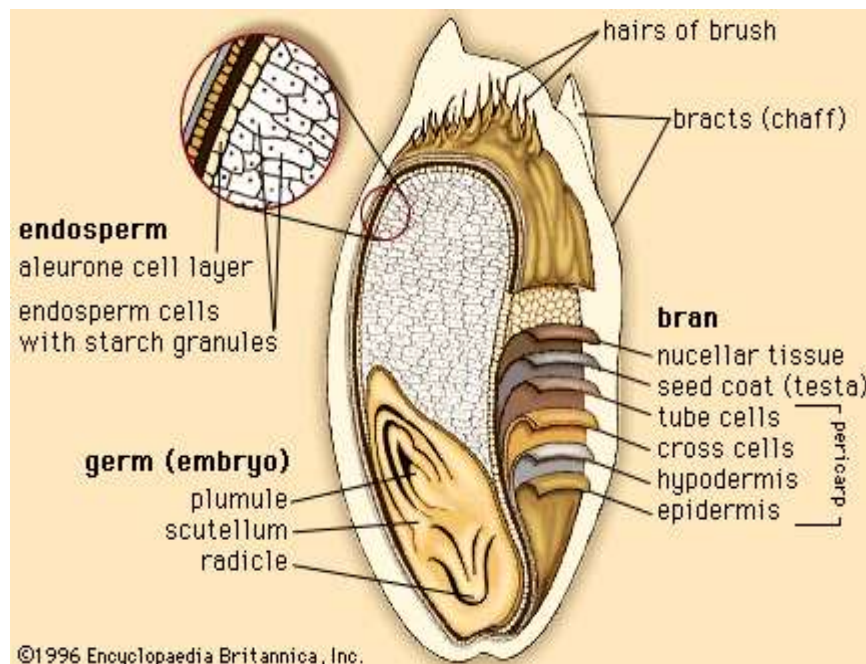
- A. Structure of wheat
- B. Types of Wheat
- C. Types of Flour
- D. Processing of Wheat – Flour
- E. Uses of Flour in Food Production
- F. Cooking of Flour (Starch)

Exam – draw the structure of wheat grain. Briefly explain different parts. 5
Explain varieties of flour.

Exam – describe the processing and manufacturing of wheat flour. 5

Exam – explain the milling process of wheat. 10

WHEAT



Source: it is the most common cereals product in western world and grown in most temperate region. Large quantities are home grown and great deal particularly in the form of strong flour.

Protein present in wheat flour is gluten. Grain rich in gluten are strong flour and vice versa. Strong flour used in use in bread and soft flour for biscuit, cookies etc.

Food value: wheat is the one of the best energy food. Whole grain cereals provides vitamin B therefore protective food

Storage of wheat:

- The store room should be dry.
- It should be kept above the floor level.
- Flour should be removed from sacks and kept in wheeled bins.

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- Flour bin should be a type that can be easily cleaned.

Flour is probably common commodity it forms the foundation of pastry, breads, cakes, and also used soups, sauces and batter.

Structure of wheat:

1. The bran is the hard outer covering of the kernel.
2. The germ is the part of the kernel that becomes the new wheat plant if the kernel is sprouted.
3. The endosperm is the starchy part of the kernels that remains when the bran and germ is removed.

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Types of wheat:

The characteristics of flour depend on the variety of wheat from which it is milled, the location in which the wheat is grown. There are hard wheat and soft wheat.

Hard wheat contains greater quantity of glutenin and gliadin, which together form gluten, when the flour is moistened and mixed.

Soft wheat is less in gluten content.

Production of flour:

The endosperm of the wheat contains all the materials used by the baker. It consists of numerous large cells of net like form in which starch grains are tightly packed. In addition the cells contain an insoluble protein known as gluten. When flour is mixed with water, it is converted into sticky dough. This characteristic is due to gluten which becomes sticky when moisture is added. The relative proportion of starch and gluten varies in different wheat and close with a low percentage of gluten are not suitable for bread making. For this is reason what is blended. Soft flour is very useful for pastries, cookies and biscuits.

MILLING

The wheat grain has to be milled in order to extract all the components of the grain and to make it ready for the bread making process. There are 2 main methods employed to do this job, which are;

- a) Stone milling.
- b) Roller milling.

Stone Milled flour is the more primitive method of milling flour and it consists of 2 heavy stones, on top of each other. The bottom one remains stationary while the top one moves in a circular fashion. There is a small opening on top of the stone through which the grain is passed. Heat is generated by friction during milling part of which is absorbed by the stone. A part of the heat goes to the germ and melts the germ oil and mixes it throughout the endosperm. This method is mainly used to make whole wheat flour and when refined flour is to be produced, the flour is sieved through Silk Bolting cloths to remove the coarse bran particles. However all the particles are not removed by this method.

Some of the cerealin or aleurone cells also pass into the flour which causes a slight softening of the flour/gluten.

Roller milling is a more modern method of milling where there is a gradual reduction of the size of the grain from coarse meal to fine flour. The mill consists of two horizontal rollers, one rotating faster than the other. This rolling has a tearing effect on the grain which is ripped open. Here the germ is separated from the endosperm before milling and hence the germ oil is not released into the flour. Also the aleurone cells are released into the flour to such a large extent, giving a stronger flour. The only disadvantage that this method has is that the heat generated by the grinding process is transferred to the flour as there is no stone to absorb it causing a slight denaturing of certain particles.

Nutritive value:

Wheat and wheat products have been important economically and gradual replacement of other cereals grains by wheat is taken place in human diet. Besides being a good source of energy, it's a good source of protein.

Types of flour:

1. White flour : contains 75% - 80 % of grains(endosperm)
2. Whole meal flour: contain 100 % of whole grain
3. Wheat meal flour: contains 85%- 90% of whole grain
4. Self rising flour: it is white flour in addition of cream of tartare and sodium bicarbonate.
5. Semolina: it is granulated hard flour prepared from central part of wheat grains
6. Durum wheat flour: used for pasta product; macaroni, vermicelli
7. Hard or strong flour: flour which yield a large amount of gluten with pronounced, elastic and cohesive properties and water absorption power.
8. Soft or weak flour: contain less gluten.
9. All purpose flour: the flour where gluten content is medium and can be used both for bread and cookies.
10. Seasoned flour: mixed with salt and pepper and fine herbs

Uses of flour:

- Cakes and pastries
- As thickening agents (roux)
- Pastas
- Cookies and biscuits
- Pancake

Tortilla SIMPLE BREADS

- A. Principles of bread making
- B. Simple yeast breads
- C. Role of each ingredient in bread making
- D. Baking temperature and its importance

Briefly gives the faults in bread making.

What is the role of sugar and salt in a bread making?

What is the role of protein in a bread making?

Exam -Give the standard recipe for preparation of bread rolls. 5

Exam -What are the principles / fundamental step in bread making? 5

Exam -Explain the role of various ingredients in bread making ? 5

Exam - Give the recipe to make 16 bread rolls ? 5

Exam- list the ingredients used in bread making. Explain their role in bread making. 3+7

Exam – write short note on action of salt in bread making. 5

Exam – explain the holes and tunnels in breads ? 5

Exam – explain under fermented dough. 5

BREADS

INTRODUCTION: A staple food made from flour or meal mixed with other dry and liquid ingredients, usually combined with a leavening agent, and kneaded, shaped into loaves, and baked.

Wheat and barley were two of the earliest plants to be cultivated, and primitive people living as early as 5000 B.C. are known to have eaten these grains. Eventually it was discovered that adding water to the grain made it more palatable, and people experimented with cooking the grain and water mixture on stones that had been heated in a fire. In this manner, porridge and flat breads were developed.

Cooking the dough in an oven over an open fire produced an even better grade of bread. The first ovens were clay structures in which a wood fire was burned. When the wood had completely burned, the ashes were scooped out from an opening on the side of the oven. The wheat dough was placed inside the oven and then the opening was sealed. By the time the oven had cooled, the bread was baked.

BASIC INGREDIENTS USED IN BREAD MAKING:

1. **STRENGTHENERS:** It provides stability, ensuring that the baked good does not collapse once it is removed from the oven. For all baked product the major strengthener is flour. Because it provides the structure, flour act as a strengthener because of its protein and starches
2. **SHORTENER:** shortener make baked product tender and moist. This occurs when the shotenere (butter, margarine, lard) is incorporated into the batter. The fat tends tend to surround the flour and other ingredients, breaking the long strands of batter or dough into shorter units- hence the term shortener.

3. **SWEETENER:** sweeteners (sugar, honey, molasses etc) perform other functions in addition to providing flavors, sugar in any form tends to attract moisture, so baked goods containing sweetener generally are more moist and tender than unsweetened product.
4. **LEAVENERS:** leavener produces a desirable texture by introducing carbon dioxide into batter and dough. The gas stretches the dough and creates small bubble. There are 3 types of leavening agents
 - **Chemical leavener:** baking soda and baking powder are the primary chemical leavener. In these leavener an alkaline ingredient interact with an acid (already present in the baking powder or an ingredient such as butter cream, sour cream etc) double acting baking powder is so called because a first actions occurs in presence of moisture in the batter and the second initiated by the presence of heat.
 - **Organic leavener:** yeast is living organism that feed on sugar, providing alcohol and carbon dioxide. The yeast has to grow and reproduce sufficiently to fill the dough with air pockets. Yeast will not function well below 18-21 degree centigrade and above 43 degree centigrade, yeast is destroyed.
 - **Physical leavener:** the basic physical leavener is steam, which is produced when liquid in batter or dough are heated, this cause the air pocket to expand. Steam act as leavener in puff pastry, croissant soufflé etc.
5. **THICKENER:** Egg, gelatine, starches (flour, arrowroots and cornstarch) are thickening agent used for making pudding and sauces.
6. **FLAVOURING:** Usually extracts and essences, chocolate chips and chopped nuts.
7. **SALT:** added to enhance the flavour & controls the fermentation.
8. **EGGS:** It is not used usually. The addition of the eggs will increase the proteins in the dough. Egg gives a hard crust.

DIFFERENT METHODS IN BREAD MAKING:

1. **STRAIGHT DOUGH METHOD:** The simplest and common method of mixing yeast dough is known as the straight dough method. With this method, all the ingredients are simply combined and mixed together. The yeast may or may not be combined first with a warm liquid. Be careful that the temperature of the liquid ingredients does not exceed 59°C or the yeast will die. Once the ingredients are combined, the dough is kneaded until it is smooth and elastic
2. **SPONGE METHOD:** The sponge method of mixing yeast dough has two stages. During the first stage the yeast, liquid and approximately one half of the flour are combined to make a thick batter known as sponge. The sponge is allowed to rise until bubbly and double in size. During the second stage the fat, salt, sugar and the remaining flour is added. The dough is kneaded and allowed to rise again. These two fermentation give sponge method breads a somewhat different flavor and lighter texture than breads made with straight dough method.

PRODUCTION STAGES IN BREAD MAKING:

1. **SCALING INGREDIENTS:** It is very important to scale or measure ingredients accurately when making yeast bread.
2. **MIXING AND KNEADING DOUGH:** Dough must be mixed properly in order to combine the ingredients uniformly, distribute yeast and develop gluten.

Dough mixing methods:

- Straight dough method : all the ingredients ate just combined and kneaded
- Sponge method: flour, yeast, sugar, water- kept for sponge then it is used.
- Flaky dough method: it is same as rolled in dough method.

3. **FERMENTING DOUGH:** Fermentation is the process by which yeast converts sugar to alcohol and carbon dioxide. During fermentation the dough is allowed to rise.

Fermentation is resting of whole dough but proofing is resting of shaped dough (balls and knotted). The whole yeasted dough is kept in a oiled container to allow fermentation in a warm place it reaches double in size.

4. PUNCHING DOWN DOUGH: After fermentation, the dough is folded down to expel and redistribute the gas pockets with a technique known as punching down or knock back. Punching down help to even out the dough's temperature and relaxes the gluten.

5. PORTIONING DOUGH: Dough is now ready to be divided into portions. For loaves the dough is scaled to desired weight. For rolls, equal small portions.

6. ROUNDING PORTIONS: The portions of dough must be shaped into smooth, round balls in a technique known as rounding. Rounding stretches the outside layer of gluten into a smooth coating.

7. SHAPING PORTIONS: Lean dough and some rich dough can be shaped in a varieties of form – large loaves, small loaves, dinner rolls etc.

8. PROOFING PRODUCTS: Proofing is the final rise of shaped yeast product before baking. Temperature should be 35-46 degree centigrade. Proofing chamber- temperature and humidity can be controlled with a special cabinet known as proof chamber. Proofing should be continued until double in size.

9. BAKING PRODUCT: As yeast bread bake, a variety of physical, chemical changes occurs. Oven spring- when yeast rolls or dough is lace inside a hot oven, suddenly yeast product experiences a rise in size, is called oven spring.

The temperature increases, yeast dies, gluten fiber becomes firm, and the starches gelatinize.

10. COOLING AND STORING FINISHED PRODUCT: Yeast produced should be cooled at room temperature. Once cool, should be stored at room temperature and on freeze if need to be stored for longer time.

Notes:

Washes: a glaze or a wash can be brushed to the dough before baking. The crust is made shiny, hard or soft, darker or lighter by proper uses of washes. Topping can be given with seeds and meal etc.

Slashing: the shape and the appearance of some bread can be improved by cutting their top with a sharp knife before baking- known as slashing or docking.

Steam injection: the crisp crust desired for certain breads and rolls are achieved by introducing moisture into the oven during baking.

Determining doneness: bread loaves can be tested by tapping them on the bottom and listening for a hollow sound.

RECIPE OF SIMPLE YEASTED BREAD:

Refined flour – 250 gm

Preparation time: 1 hrs

Sugar – 15 gm

Baking temperature: 200°C

Fat -15 gm

Yeast – 5 gm

Salt – 5 gm

Water –as required.

Method: follow the production stages of breads.

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TYPES OF YEASTED BREADS:

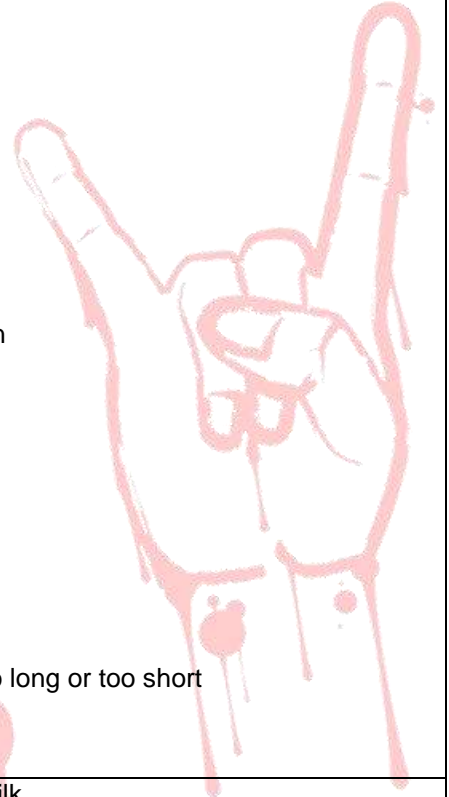
LEAN / SIMPLE YEASTED BREADS: Bread dough containing less sugar, egg and fats is lean yeast breads: Example – French bread, white milk bread, Irish soda bread.

RICH YEASTED BREADS: bread dough, rich in sugar, yeast, eggs, and fats is rich yeasted breads. Example – challah, baba, savarin, panettone, brioche etc.

BREAD FAULTS AND THEIR CAUSES

SL NO	TYPE	FAULTS	CAUSES
1	Shape	<p>Poor volume</p> <p>Too much volume</p> <p>Poor shape</p> <p>Split or burst crust</p>	<p>Too much salt</p> <p>Too little yeast</p> <p>Weak flour</p> <p>Oven too hot</p> <p>Too little salt</p> <p>Too much yeast</p> <p>Too much dough scaled</p> <p>Over proofed</p> <p>Too much liquid</p> <p>Flour too weak</p> <p>Improper molding</p> <p>Too much oven steam</p> <p>Over mixing</p> <p>Under fermented dough</p> <p>Improper molding</p> <p>Uneven heat in oven</p>
2	Flavor	<p>Flat crust</p> <p>Poor flavor</p>	<p>Too little salt</p> <p>Inferior ingredients</p> <p>Poor bake shop sanitation</p>

			Under- or over fermented
3	Texture and crumb	<p>Too dense or coarse –grained</p> <p>Too coarse or open</p> <p>Poor texture or crumbly</p>	<p>Too much salt</p> <p>Too little liquid</p> <p>Too little yeast</p> <p>Under fermented</p> <p>Too much yeast</p> <p>Too much liquid</p> <p>Incorrect mixing time</p> <p>Improper fermentation</p> <p>Over proofed</p> <p>Pan too large</p> <p>Flour too weak</p> <p>Too little salt</p> <p>Fermentation time too long or too short</p> <p>Over proofed</p>
4	Crust	<p>Too dark</p> <p>Too pale</p> <p>Too thick</p>	<p>Too much sugar or milk</p> <p>Under fermented dough</p> <p>Oven temperature too high</p> <p>Baking time too long</p> <p>Too little sugar or milk</p> <p>Over fermented dough</p> <p>Over proofed</p> <p>Oven temperature too low</p> <p>Too little sugar or fat</p> <p>Improper fermentation</p> <p>Baked too long or at wrong temperature</p>



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CHAPTER 7

PASTRY CREAMS

- A. Basic pastry creams
- B. Uses in confectionery
- C. Preparation and care in production

Name two basic pastry creams

Exam - Write short notes on pastry cream ? 2.5

PASTRY CREAM is a very dense, rich custard. It is a staple of French desserts such as éclairs, and is generally used as a filling in baked goods. The most basic pastry cream is made with vanilla, but it can also be flavored with chocolate, lemon, orange, or other extracts. It can also be lightened slightly with the addition of heavy cream, if straight pastry cream is too dense for a particular recipe.

French filled desserts have incorporated pastry cream, or crème pâtissière, for centuries. Several neighboring nations have also adopted pastry cream for rich filled desserts ranging from zuppa inglese to some versions of cheesecake. Some cooks substitute whipped cream for pastry cream, but the two are so different that using whipped cream will fundamentally change the flavor of the finished dish. There is no reason not to use pastry cream, especially since it is so easy to make.

Start by bringing two cups of milk to a boil, along with one split vanilla bean. Stir frequently to prevent the milk from burning, and remove it from the heat just as it starts to bubble. Meanwhile, whisk six egg yolks together with one half cup sugar. When the egg yolks and sugar turn to a pale straw color, sift one cup of cornstarch into the mixture and whisk again.

Pour one half cup of the heated milk slowly into the egg yolk mixture, whisking to incorporate it. Next, pour the egg yolk mixture into the heated milk pan, and whisk the mixture together until it starts to thicken. Use a very low heat during this process, to gently encourage coagulation while also avoiding burning. If you want to flavor the pastry cream with an extract such as orange or rum, add it at this time.

Pull the pastry cream off the stove and force it through a sieve to remove the vanilla bean and any large lumps. Allow the pastry cream to cool in an ice bath slightly before adding three tablespoons of unsalted butter one at a time, whisking thoroughly to incorporate after each addition. For a lighter pastry cream, add one half cup of lightly whipped heavy cream, blended with a small amount of confectioner's sugar. Next, press a sheet of plastic wrap tightly into the pastry cream to prevent the formation of a skin, and promptly refrigerate it. Use the pastry cream within three days as desired

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CHAPTER 8

Milk

- A. Introduction
- B. Processing of Milk
- C. Pasteurisation – Homogenisation
- D. Types of Milk – Skimmed and Condensed
- E. Nutritive Value

Exam - What is pasteurization of milk? 3

Exam – exam - What are the different types of milk? 5

Exam - Explain homogenization of milk. 3

Explain processing of milk.

Exam - What is the constituent of milk and its nutritive value? 5

Exam – difference between whole milk and toned milk. 5

MILK

Milk is one of the most basic of all food. Milk constitute a complete diet and even for adults, cow's milk includes many essential nutrients particularly calcium.

SOURCE:

Mankind from time immemorial has used the milk of animals. The milk of cow, buffalo and goat is generally used. In some countries milk of sheep, mare and camel is also used.

Milk represents a major ingredient in our diet- poured over cereals, drunk in glasses, in tea and coffee- but it also enters the composition of many dishes especially desserts such as ice cream, custard, pancakes, rice puddings etc. it is particularly high in calcium, but it is also fairly in fat.

COMPOSITION: Whole milk – that is, milk comes from the cow- is composed of water (88%), milk fat (3.25 %), other milk solids(protein, lactose and minerals)- 8.25%.

There are many types of milk consumed though mostly it is cow's milk, goat's milk and sheep's milk.

HISTORY OF MILK

Milk can be defined as a white opaque slightly sweet nutritious liquid secreted by the mammary glands, Milk has always been a symbol of fertility and wealth since biblical times and the promise land was described to be flowing with milk and honey. In India and Asia, zebus and water-buffalo's milk were considered sacred while the Romans and the Greeks were partial to the goat's and ewe's milk they also drank mares, camels, and asses milk.

Milk has a flourishing population of microbes. This is vital for natural coagulation of milk, but it can be harmful that is why various methods are used to pasteurize or sterilize the milk, thus avoiding deterioration and prolonging the length of time if can be stored.

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PROCESSING TECHNIQUES:

Processing

From the time it is milked from the animal to the time of sale, milk has to undergo processing to improve the keeping quality and to make it fit for consumption. The various stages are:

1. Collection

Milk is brought to the dairy in clean sterilized vessels, preferably stainless steel.

2. Holding tanks

The milk is immediately transferred to holding tanks and is held at 10°C to keep it safe. Cooling is done either in a tank, jacketed with pipes in which runs a brine solution. Else the milk is run over very cold water pipes.

3. Filtration

The milk is passed through a series screens and filters to remove sediment and floating particles.

4. Pasteurization

It is the process of heating milk to 63.7°C and holding it at that temperature for 30 minutes. This is known as the "Holder Process of Pasteurization". Nowadays, the Flash Pasteurization is more commonly used. It is also called the HTST or High Temperature Short Time method, where the milk is heated to 71.6°C for only 15 seconds. Pasteurization makes milk safe for human consumption by destroying pathogenic germs (pathogens). It also helps to increase the shelf life. Flavour of the milk remains unaffected at pasteurization temperature.

5. Homogenization

At temperature of 60°C, milk is passed under high pressure through small opening of a machine called homogenizer. The main purpose is to subdivide the fat globules in milk and disperse them evenly in the entire mass. Fat has a low density and tends to rise to the surface during heating. Homogenization prevents this by first breaking up the fat into tiny particles and then dispersing them throughout the milk. This adds to the flavour and results in a better body.

6. Bottling

The bottles of selected and uniform size have to be sterilized by steam and hot water and then they are filled with milk, which are capped automatically. Nowadays milk is filled in plastic pouches and these are more economical, easily transported and save storage space. Plastic pouches are easily disposed and are safe to handle.

7. Sterilization

The sealed bottles are now heated for 30 to 40 minutes at temperatures ranging from 104-110°C in steam chambers called autoclaves and then allowed to cool. Milk can also be sterilized before bottling. It is subjected to temperatures of 135-150°C for just 1 second. This is called the UHT or Ultra Heat Treatment. This process kills off all microorganisms and the very short holding temperature reduces the changes in colour and lined with aluminum foil. Milk is then distributed through various outlets.

Various types of milk:

1. Untreated milk: it retains its entire natural flavor. It is advised to boil for 15 minutes before using. It remains good in refrigerator for 24 hrs.
2. Pasteurized milk: To kill bacteria by heating milk or other liquids to moderately high temperatures for a short period of time. Milk must be heated to at least 145°F for not less than 30 minutes or at least 161°F for 15 seconds, and then rapidly cooled to 40°F or lower.
3. Sterilized milk: is homogenized milk, heated to about 112°C under pressure for 15 mins in sealed bottle. The bottle is rapidly pulled to 80°C and then allows reaching lower temperature.
4. Skimmed milk: this is the milk without any fat. Basically it is a fat buster, low calorie produce
5. Fortified milk: extra nutrients are added to make the milk more nutritive. Usually vitamin B is used.
6. Flavored milk: flavor and color added. Treated with high temperature of 100°C for about 15 mins, so that they may be kept later at room temperature.

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TONNED MILK : toning is done to make buffalo milk resemble in appearance and flavor to cow's milk. It is done by dilution and addition of skimmed milk powder. 40 % of skimmed milk is added to 60 % of buffalo milk. The addition of skimmed milk powder makes up for the dilution of the nutrients, the fat content remains diluted and equal to that of cow's milk.

Concentrated milk:

- Evaporated milk – unsweetened milk, evaporated under reduced pressure and reduced to 60% and canned.
- Sweetened milk- same as above but sugar is added before processing. Sugar acts as preservatives also.
- Milk powder-This is the whole milk from which the water is removed by either spray drying or by drying processes

CULTURED DAIRY PRODUCTS:

Cultured dairy products such as yoghurt, butter milk, and sour cream are produced by adding specific bacterial cultures to fluid dairy products. The bacteria convert the lactose to lactic acid, giving the products their body, and tangy and unique flavor.

USES OF MILK

- 1) Used in soups & sauces.
- 2) Used in vegetables preparation.
- 3) Used for making puddings, cakes & sweet dishes.
- 4) It is used for the preparation of non-alcoholic drinks such as milk shakes
- 5) Used in preparation of hot drink such as tea, coffee, hot chocolates etc.

Notes :

WHOLE MILK: It comes as pasteurized & has fat content of 3.9 %.

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CREAM

Cream is the butter fat content of whole cow's milk, separated from the water.

Cream is commercially separated from milk in a creamery, by means of a mechanical separator. The milk is first heated to between 32-49°C (90-120°F) before being run into the separator which operates like centrifugal machine, rotating at very high speed and forcing the milk, which is heavier, to the outside; while the cream, which is lighter, remains at the centre. The cream and the skimmed milk are drained out through separate outlets and by means of a control valve, the fat content is adjusted. The skimmed milk is then heated to 79.5°C (175°F) to kill off any harmful bacteria before being further processed into dried milk etc.

The principal difference between the various types of cream -single cream, double cream, whipping cream, clotted cream and soured cream - is the balance between water and butterfat. This will make them liquid or of a very thick consistency.

Other differences are in the way they have been made and their time for maturing which results in different tastes.

Cream has a slight yellow or ivory color and is more viscous than milk.

Cream is used in kitchen to give flavor and body to sauce, soups and desserts.

Single Cream: contains not less than 18% butterfat. It cannot be whipped due to their being too little butterfat.

Double cream: contains not less than 45% butterfat. It can be whipped but not too much as it will turn to butter. It can be used to enrich sauces, but may curdle if boiled along with acid ingredients.

Whipping Cream: containing not less than 38% butterfat. It is perfect for whipping as its name indicates. After whipping you will find a difference in texture and a change in volume. Sweetened or unsweetened cream can be used in desserts or can be used as an accompaniment, and is incorporated in mousses to lighten them.

Clotted Cream: contains not less than 55% butterfat. It is already very thick so it can be used as it is and not whipped.

Soured Cream: These are single creams which contain about 20% butterfat, but have a souring culture in them, and they are matured.

Half and Half: is a mixture of milk and cream in equal quantities and contains about 10-12% butterfat.

Note: Cream should be whipped at around 4°C. And for this it will be helpful to chill the bowls also so as to allow little dissipation of heat.

Manufactured Cream

1. Reconstituted Cream

It is made by emulsifying butter with skimmed milk or skimmed milk powder. This is not true cream, but a substance which resembles it in appearance.

2. Imitation or Synthetic Cream

It is made by the emulsification of vegetable fats with dried egg and gelatin, and then sugar and flavourings are added. It is a product which is frequently used in catering and baking trade, but which is very easily contaminated and liable to cause food-poisoning.

Uses of Cream

1. To serve with hot or cold coffee and chocolate.
2. To serve as an accompaniment (fruit based salad).
3. To be used for decorative purposes in cakes and gateaux and for garnishes in soups and desserts.
4. As a main ingredient in certain desserts such as ice-cream and custards.

Storage of Cream

Fresh cream must be treated in the same way as fresh milk, as far as storage is concerned. Whipped cream must be covered and stored in sterilized containers in the refrigerator and used in the same day. Reconstituted and imitation cream must be refrigerated and only small quantities be whipped, when required for immediate use.

CHEESE

- A. Introduction
- B. Processing of Cheese
- C. Types of Cheese
- D. Classification of Cheese
- E. Curing of Cheese
- F. Uses of Cheese

Explain the types of cheese.

OR

Exam - Classify cheese with suitable examples with their country of origin. 5

Exam - How cheese is processed? Or Steps in making cheese. 5

Exam - Exam - What are the Steps in making cheese? 5

Exam - List six uses of cheese in cookery.

Exam - Explain different types of cheese with their brand name and country of origin. 5

CHEESE

COMPONENTS OF CHEESE MAKING

Milk - The various cheese of the world first owe their character and taste to the type of milk used - double cream, toned, or skimmed milk. The character also greatly depends on the what animal the milk came from - cow, goat, ewe, or water buffalo.

Starter - If left in a warm place, milk will sour by itself. This souring is due to the action of bacteria on the milk sugar, lactose, and its conversion to lactic acid or sour milk. To speed up the process of souring and to prevent the milk from becoming bitter and unpleasantly sour, a little warm sour milk from the previous day's milk is added to this batch. This speeds up or starts the process of coagulation, and is known as the starter or starter culture. In the case of pasteurized milk, all bacteria is killed, and hence the starter consists of a combination of cultures grown in the lab.

Rennet - Although the starter culture speeds up the process of souring milk, and would eventually cause it to curdle, it produces quite a sharp, acidic taste. The use of rennet, which is an enzyme from the inner lining of young hoofed animals like lambs and calves, significantly improves the product. Rennet also helps break down the curd into a smooth, even consistency, contributing to the texture and flavor.

Method of production

Preparation of milk

Milk is one of the prime ingredient was making cheese, it is a high protein dairy product made from the milk of animals like cows, sheep, goat, buffalo, yak etc.

Prior to manufacture process, milk needs to be prepared, this is done by pasteurizing the milk, homogenizing it and then clarifying it.

Addition of starter

This is done by two methods:

- In sour milk cheese lactic acid bacteria thickens the milk and
- sweet milk cheeses (most cheeses are of this kind), which are also called rennet cheeses. For this the cheese maker adds rennet an enzyme taken from the stomach of suckling calves to separate solids in the milk from the fluid.

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- The rennet causes the milk protein to build up and the milk to curdle without the milk turning sour. In this method all other solid particles like fat, protein and vitamins get encompassed. Most of the rennet used today in cheese making comes from the lining of a calf's stomach.

Formation of Coagulum

- Addition of starter leads to coagulation of milk into a thick mass called 'young curd' and separation of whey.
- When the process is complete the liquid whey is drained off and the solid mass of curd or coagulated milk protein is used to make cheese. At this stage this is called as 'firm curd'

Cutting

- Firm curd is cut into smaller pieces by use of knives or chains. The size of the cut will be dictated by the type and recipe of cheese. In most countries this process is carried out manually.
- This process is carried out for hard cheeses.

Stirring/ Scalding

- This process is also carried out for hard cheeses. It expels more whey and shrinks the curd.
- This process also speeds up the bacterial metabolism.

Salting

- Salt is added into the cheese by wet or dry method as per the recipe.
- Brining in some cheeses also leads to longevity in shelf life

Moulding or Vatting and Pressing

- After salting cheese is put in moulds for it to acquire a particular shape.
- This can be done in plastic or wooden moulds
- The cheese is pressed which gives it a definite shape.
- In case of blue chesses pressing is not done.

Finishing

- Cheese is de moulded and a rind or coating is given to the cheese.
- This process includes coating, wrapping or bandaging the cheese.
- The softer cheeses acquire a natural rind while it matures.
- In some cases rind is dried by rubber ash, use of grape must and wrapping it in leaves.
- Such as Gorgonzola which is coated with plaster of Paris

Ripening/ Maturing

- Mostly the harder cheeses are matured. They are matured in caves. A hard cheese can take anything from 8 weeks to a year to ripen and mature.

TYPES OF CHEESE

The type of cheese produced by the cheese maker depends on the amount of moisture he wishes to eliminate and the size of the cheese. The amount of moisture in the cheese will also determine what kind of rind or mould will grow on the cheese.

1. Fresh Cheeses

Fresh cheeses are usually made by setting the curd with starter and rennet and are high in moisture. The young curd is placed in sacks or perforated containers and drained slowly without pressure for a few hours so that the curd retains much of the whey. Once sufficient whey has been drained off, the curds are either mixed or sprinkled with salt. They are now ready to be eaten. For some cheese, like fromage frais, the rennet is not added. Such cheese are called 'lactic cheese'. Some fresh cheeses are allowed to mature and grow either a white or bluish grey mould.

Fresh cheeses are always mild and high in moisture and therefore low in fat. They have a slightly acidic or lactic taste. Most are used for cooking but some may be wrapped in leaves or dusted with paprika or fresh herbs for serving as a table cheese.

2. Soft Cheeses

The curd is ladled gently into perforated moulds and left to drain in an atmosphere of high humidity so that the curd does not lose too much whey. After a few hours, the cheeses are turned out of their moulds and left to mature for a few weeks. Their high moisture content, coupled with high humidity, attracts and encourages the growth of classic white penicillium mould, which helps to break down the curd and contribute the flavour and texture of the cheese. The result is a creamy, smooth, interior that looks as though it is almost ready to run

3. Semi-hard Cheeses

To obtain a firmer cheese, the curd is cut up to release some of the whey before the curd is placed in the moulds. It is then often lightly pressed to speed up the draining. After a day or so, the cheese is turned out of its mould and washed in brine. This seals the rind before the cheese is placed in cellars or ripening rooms where moulds are encouraged to grow.

The lower moisture content means the fermentation process is slower, producing cheeses with a round, full bodied, rather than strong flavour. Their taste often seems to be embodied with the oils and esters of the wild mountain flowers of Europe. When young, semi-soft cheeses have a firm yet springy, school eraser texture, becoming elastic and supple.

4. Hard Cheeses

To make a hard cheese, the curd must be cut more finely - from small cubes to rice-sized pieces. - The smaller the pieces the more whey will be lost from the curd. The curds are then gently heated in a vat to force out more moisture before the whey is drained out. Salt is then added to the curd, which now resembles rubbery, lumpy cottage cheese. They may be cut again before being placed in large, perforated moulds that are frequently engraved with the unique symbol, logo, pattern or name to identify the finished cheese or its maker. This is then sealed and left to mature for weeks or even years.

Hard block cheeses are pressed into shape and then matured in special plastic wrap that allows the cheese to age without the development of either mould or rind. The moisture that would normally be lost during maturation is also retained.

5. Blue Cheeses

Blue cheeses are neither pressed nor cooked. Most frequently the curd is crumbled, eliminating much of the whey, then scooped into stainless steel cylindrical moulds, each with a wooden disc on top. The curd remains in the moulds for one to two weeks and is churned frequently to let the weight of the curds to press out more of the whey. Once the cheeses can stand up on their own, they are removed from the moulds, rubbed with salt, and returned to the cellars.

The blue mould is a strain of penicillium that is added to the milk before the rennet is added. For the blue mould to grow however, it needs to breathe, and this is aided by piercing the cheese with rods. The blue then grows along the tunnels and into the nooks and crannies between the loose curd producing shattered porcelain look that typifies blue cheese. Most blue cheese are normally wrapped in foil to prevent them from drying up.

Uses of Cheese:

1. As a cheese course for lunch or dinner. (The cheese would be served to a customer on a cheese board containing U.K. cheeses only, French cheeses only or a variety of U.K. and continental cheeses. Serve cheese at room temperature as only at room temperature will the full flavours develop).
2. As a feature item on a cold buffet.
3. As a cooking cheese:
 - a. To add to a basic cream sauce to make a cheese sauce.
 - b. To serve as an accompaniment to soups and farinaceous dishes.
 - c. To serve sprinkled on dishes to be gratinated.
 - d. To serve on toast e.g. grilled, Welsh rarebit etc.To include in salads, snacks etc.

Famous Cheeses of the world(English)

Cheddar

- It is a best seller among the cheese and is a firm ripened type, it comes in many varieties ranging in flavour from very mild to very sharp "rat cheese".

Stilton

- Stilton is a white cheese with a light yellow hue and a strong blue-green mold culture. It is the best of all English blue cheeses The taste is spicy and is mostly drunk with a glass of Port.

Italian

Parmesan

- Another well known flavourer of salad dressings and sauces .
- It is a hard ripe cheese with a piquant and sharp flavour.

Gorgonzola

- Originally produced near Milan in a town called Gorgonzola, from full cream pasteurized cow milk.
- It is very creamy, soft and marbled with blue veins. To allow the blue veining to spread through it the cheese is punctured with long high grade needles from one side and then a week later from the other side.

Mascarpone

- It is described as curd cheese. Used in tiramisu.

Bel Paese

- Another delicious cheese from Italy, which is soft and yellow, sweetish and very mild. Made from pasteurized milk.

Mozzarella

- Mozzarella is one of the most famous Italian cheeses, it is used more to give finish to a dish rather than taste. It is made from Buffalo milk.

Parmigiano - Reggiano

- It is a hard cheese with orange rind. Used in sauces, salads and over pasta and risotto.

Ricotta

- Is a soft, moist yet firm cheese. Used as a dessert cheese with sugar and fruits and also in pastry fillings. It is also used for filling savories like ravioli

French

Brie and Camembert

- Most French cheeses are soft and the luxury end of the scale are two dessert cheeses Brie and Camembert both almost sauce soft. They taste much better than their aroma and rather unattractive appearance, which would lead you to believe. But an odour of ammonia will tell you when they are past their prime.

Roquefort

- Comes from the region of Rouergue.
- It looks like marble, for its noble paleness is patterned with blue veins and patches. It is made from sheep's milk that is full cream and unpasteurised.
- Is used for blue cheese dressing for salads.

Greece

Feta

- This is a goat cheese from Greece made from goats or sheep's milk and is an integral part of Greek cuisine

Swiss

Emmenthal

- Emmenthal cheese is equated with Swiss cheese all over the world. It is made of raw cow milk and with the addition of rennet.

Gruyere

- Another delicious cheese from Switzerland, It's mild when young and sharper when older. It's a sharp cheese with a nutty aroma.

Holland

Edam

- Named after the small port of Edam, north of Amsterdam, it is a pressed, semi soft cheese.
- Edam is coated in red wax, which makes it so distinctive and is sold young.

Gouda

- It accounts for more than 60% cheese in Holland.
- Gouda is firm, smooth and supple cheese; it has a sweet and fruity flavour.
- Also had as a breakfast cheese.

Denmark

Danablu/ Danish Blue

- Danablu is a one of the most famous blue cheese.

- It is sharp, metallic and salty taste

BUTTER

- A. Introduction
- B. Processing of Butter
- C. Types of Butter

Processing of butter.

Types of butter.

Differentiate between compound butter and salted butter.

Butter is fatty substance obtained from churned cream, containing 80% fat, 20% water and whey (milk solids left from separating process).

- Butter hardens at low temperature and melts when heated.
- The smoking temperature of butter is 127°C.
- Color varies from creamy white to golden yellow. It is the milk protein in the whey that makes butter spoil quickly.
- Most of the butter is made from cow's milk but other are some butter made from the milk of buffalo, yak, goat and sheep is also available.

PROCESSING / MANUFACTURING OF BUTTER

1. **HOLDING:** Cream is pasteurized for 2-4 seconds at 95° C and then the temperature is lowered to 4-5° C and that is kept for several hours to ensure uniform hardening of fat particles.

2. **RIPENING:** When the end product is going to be Lactic butter, only then this step is carried out, in which bacterial culture is added. In this case, the holding temperature will be 15-18° C for 3-4 hours before being cooled to 4-5° C. This gives butter a good flavour and the stage is omitted while making sweet cream butter.

3. **CHURNING:** It is carried out in big stainless steel containers holding about 100 gallons of cream and the internal churners pass through the cream. This breaks the layer of fat solids which are released and are combined to form a large group of butter fat. After about 30 minutes of churning the butter gets separated from butter milk and floats to the surface.

4. **WASHING AND SALTING:** The butter grains are now washed with ice cold water to remove any butter milk left on the surface of each grain, in order to maximize the keeping quality.

Salting is carried in two ways:

- i. By adding fine grains of dairy salt.
- ii. By dipping butter grains into brine solution (salt + vinegar) for 10-15 minutes and allowing the butter grains to absorb it.

Types of butter :

There are two types of butter-

- 1. Sweet cream butter
- 2. Lactic butter.

Butter can be made from any kind of milk. In India, butter is made from buffalo milk.

Sweet cream butter : it is also known as fresh cream butter and is made from unripened cream. It can be salted or unsalted. It is soft, creamy texture and a creamy buttery taste.

Lactic butter : this type of butter specially made in Denmark, Holland and France. The cream is mostly pasteurized, inoculated with a culture that ripens the butter, then pasteurized once more to arrest the ripening process.

Uses of Butter

- As a spread for bread, toast and scones
- As a basic ingredient in pastry-making and cake-making.
- Used as an accompaniment (compound butter).

- To enhance the taste and flavour of soups and sauces.
- As a cooking medium (The smoke point of butter fat is only 127-130°C; so a vegetable oil should be used when high cooking temperatures are required).
- For butter sculptures.

Butter is available in 10 Gms, 100 Gms and 500 Gms packs in the market.

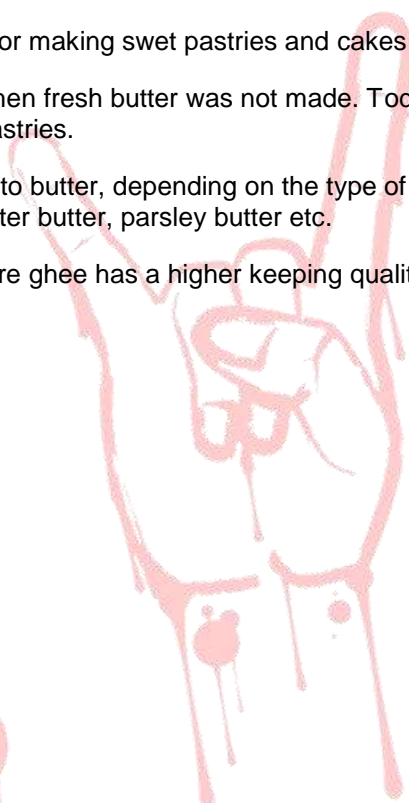
Notes :

Unsalted butter /sweet butter- it has mild aroma and slightly sweet flavor, used for making sweet pastries and cakes.

Salted butter –butter was originally salted to preserve it for the winter months when fresh butter was not made. Today salted is added to butter as ingredients. It is not ideally used in preparation of pastries.

Compound butter : these are made by adding a particular natural flavor or color to butter, depending on the type of food with which it is served. It is generally used as an accompaniment e.g. Lobster butter, parsley butter etc.

Ghee : it is obtained by clarifying butter. Butter is heated to evaporate water. Pure ghee has a higher keeping quality and is a good cooking medium and shortening agent used in Indian cuisine.



Why so serious?

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