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HISTORICAL ORIGINS AND DEVELOPMENT OF FOOD PRESERVATION: AN OVERVIEW

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ABSTRACT

Early man was totally dependent on nature for his food. Due to ignorance of food preservation, he used to consume food immediately, or it went waste. Young males of the community were engaged in hunting, while women and aged person were engaged in food collection. During food collection ,they came to know what the right kind of food was and where they could get it from. In the same process stated above, they came to know about environmental changes. Drying in the sun could preserve food was perhaps realized from some sun dried fruits. Food preserved under ice, they came to know that food could be preserved under ice for long period of time. Aged person and women staying at home would have started food preservation. A dramatic change came in life of ancient man as he came to know about food preservation. Now he started getting food according to his need and interest. From the studies we came to know that for the uninterrupted food supply, the ancient man adopted different method of food preservation, viz. drying, smoking, curing, salting, fermentations, freezing etc. All these methods were used individually or collectively in combination with two methods. He used to dry and preserve the food by the use of sunlight and fire. Food preservation using ice-houses, cellars, caves and cool streams is very popular. Preparation of beer using fermentation process was discovered accidentally. Fermentation not only preserved food, but also created nutritious food because micro-organisms responsible for fermentation produced some vitamins as they ferment. Picking in India was an ancient art of food preservation. Indian pickles were quite different from European variety in that the pickling was done in oil rather than using vinegar. The earliest curing was actually dehydration which was used for food preservation in ancient time. For curing salt was used to desiccate food. Nitrite in salt was the main component responsible for inhibiting growth of food poisoning micro-organism. Beside these methods, honey and sugarcane juice were also used for food preservation. Earlier food preservation was linked with our living, but now it has become a part of our cultural life. It is this cultural nature of preserved foods that survives today. Interests have shifted from 'preserve because we have to,' to 'preserve because we like to.'

Keywords: Food; Preservation; Drying; Smoking; Curing, Salting; Fermentation; Freezing etc.

INTRODUCTION

Mankind has been on earth for nearly about seventeen lakh years. During this period, he spent, most of his time in hunting and food gathering. Initially people were dependent solely on nature for their food. They used to collect their food as roots, fruits and seeds from trees, catch fish, hunted animals and thus survived. This made the life of early man very dynamic. In spite of this dynamic life, man was sometimes restricted to one place due to some reasons like old people, small children and pregnant women, and was unable to go in search of food. Secondly, transportation of commodities from one place to another was difficult in the absence of facilities like canals or trains or trucks. People could usually eat only what was available in their area at that time of year. If there was a shortage of food because of bad weather or crop diseases, people starved. Even in a good year, it was impossible to get fresh vegetables in the wintertime. Therefore, people started collecting food from sources near their habitations. Under difficult conditions of living, food gathering and hunting became a group activity. Since food could not be preserved it had to be eaten fairly soon. It was also necessary for them to adapt themselves under different climatic conditions. It is assumed

that people who preserved their food from the effect of different climatic conditions must have keenly observed the changes of different weathers that enabled them to preserve food according to wide climatic variations. Presumably, it was that the end of Ice-Age, about 10,000 B.C. After this period, man came to know that if food is kept under ice, could be stored for a long period of time. Drying in the sun could also preserve food; it was perhaps realized from some sun-dried fruits[1].

Food by its nature begins to spoil the moment it is harvested . Therefore, for making food available all the time as and when required for fulfilling his hunger, the man started persevering food by making nature its preserving medium. Presumably ,preservation of food would be initiated by women and old people residing at home. This event of food preservation is a great achievement in the history of mankind and it revolutionized the historic man's pattern of living. Now, it was no more necessary for man to finish his food immediately and discard the left-over food. He started preserving meat by sealing it into ice and drying fruits and vegetable in the hot sun. It is now evident on studies [2] that during the prehistoric age, fruits and vegetables were preserved by drying whereas meat and fish were first salted and dried then upon. Different means of food preservation were developed from experience of man. The basic principles behind food preservation were: drying, fermentation, smoking and curing etc. Each culture preserved its local food sources using the same basic principles of food preservation.

DIFFERENT METHODS OF FOOD PRESERVATION

1. Smoking

There is archaeological evidence that smoking was known as a method of food preservation at an early date. A site exists near the River Bann in Ireland which is thought to have been a summer fishing camp visited by a group of people at some point in the second millennium B.C. The site bears the remains of several hearths over which their fish are thought to have been smoked. In the first century A.D. Columella commented on the flavor of a variety of Roman cheese which was hardened in brine and then smoked[3]. There is evidence to indicate that the Romans probably utilized smoking. In colonial times, many households had smokehouses which were used to smoke beef, ham and bacon[4]. Smoking is still sometimes used to preserve fish and meat [5].

2. Drying

In ancient times, the sun and wind would have naturally dried foods. Evidence [6] shows that the Middle East and oriental cultures actively dried food as early as 12,000 B.C. in the hot Sun. Later cultures left more evidence and each would have methods and materials to reflect their food supplies – fish, wild game, domestic animals etc. A fire was used to create the heat needed to dry foods and in some cases smoking them as well. It is evident from archaeological remains [7] that Neanderthal and Chromagnen man used to preserve meat and fruit by creating heat through fire. In some cases, wheat and barley were preserved by smoking. There is evidence that as early as 12,000 B.C., Egyptians on the lower Nile dried fish and poultry using the hot desert Sun. People in areas with similar hot and dry climates found drying to be an effective method of preservation. Herodotus, writing in the fifth century B.C., describes how the Egyptians and their neighbors still dried fish in the Sun and wind then stored them for long period[8].

It is known that fruits and vegetables having higher moisture content have low shelf life. Therefore, it is necessary to dry them for preserving for a long period of time. Preserving food by drying through sunlight was popular from ancient time. Ancient Romans were perfect in preserving fruits through drying method [9]. One method of drying fish, which was used by the ancients, was to cut them in half and suspend them on ropes to dry in the sun. This method was depicted in some ancient Egyptian reliefs [10] and it is reasonable to assume that the method continued to be used in Greek and Roman times. Often, however, drying was combined with salting to preserve foods. In the middle ages purposely built, still houses were created to dry fruits, vegetables and herbs in areas that did not have enough sunlight for drying. The interior of round house was an excellent place for the drying and preservation of a variety of food. Herbs were used to be hung up on the wall for drying. They were used in food flavoring and as medicines. In the roof of the house, up in the smoke, meat and fish could be hung to preserve and gain flavor.

3. Freezing

Those geographical areas that had freezing temperatures for even part of a year made use of the temperature to preserve foods. For long-term storage, temperature less than freezing (0°C) was used. The Ancient Romans could also have used primitive forms of refrigeration to keep food fresh. They could produce cold by certain forms of evaporation or by collecting snow and ice in winter to store for use in warmer weather [11]. Cellars, caves and cool streams were put to good use for that purpose. In the areas having extremely low temperature, ice- houses were very popular for storage [12]. These ice-houses gradually developed and have now taken the form of ice-box in this modern era. Clarence Birdseye discovered quick-freezing storage of food and thus revolutionized the pattern of storing food using low temperature. [23]

4. Fermentation

Fermentation was not invented, but rather discovered. No doubt , beer was first discovered when a few grains of barley were left in the rain. Opportunistic micro-organisms fermented the starch derived sugars into alcohols. So too can be said about fruits fermented into wine, cabbage into Kim-chi or sauerkraut, and so on [13]. The skill of ancient people to observe, harness, and encourage these fermentations are admirable.

Some anthropologists [14] believe that mankind settled down from nomadic wonderers into farmers to grow barley to make beer roughly 10,000 B.C. Beer was nutritious and the alcohol was divine. Initially it was regarded as a gift from the goods. Fermentation was a valuable food preservation method. It could not only preserve food, but also create more nutritious food and was used to create more palatable food from less desirable ingredients. Microorganisms responsible for fermentations can produce vitamins as they ferment. This produces a more nutritious end-product from the ingredients. One way in which the Romans extended the life of milk was by making cheese with it. Land holders owning sheep or goats, which we kept primarily for milk, often made cheese immediately after milking because cheese was easier to transport than milk, and in hot weather, milk would deteriorate faster than would cheese[15]. Cheese making was also used in colonial times primarily in the northern colonies to lengthen the time that milk could be used.

5. Pickling

Pickling was also one of the means of food preservation in ancient times. Pickling means preserving foods in vinegar (or any other acid). Indian pickles were quite different from European one as oil was used in Indian pickles whereas vinegar was used in place of oil in European pickles. Acidic nature of pickles helps to retard the growth of microorganisms, whereas oil acts as a preservative. Even today, this very technique of pickle preservation is very popular in Indian and European countries. Vinegar is produced from starches or sugars fermented first to alcohol and then the alcohol is oxidized by certain bacteria to acetic acid. It is assumed that pickling may have originated when food was placed in wine or beer to preserve it, since both have a low pH. This technique of food preservation by pickling would have become popular since wine or beer went sour and the taste of the food in it was appealing [16]. Pickled foods were preserved in containers made of stone ware or glass, since the vinegar would dissolve the metal from pots. The Babylonians and Egyptians pickled fish such as sturgeon, salmon, and catfish, as well as poultry and geese. Sometimes salt was relatively easy to extract; in other parts it was more difficult [17].

6. Dehydration

The earliest curing was actually dehydration, which was used for food preservation in ancient time. Early cultures used salt to help desiccate foods. Salting was common and even culinary by choosing raw salts from different sources (rock salt, sea salt, spiced salt etc.). Salt has been used to preserve fish since ancient times, possibly even before meat was cured. The early Mesopotamian civilizations relied on a staple diet of salt fish and barley porridge. Fish curing, depicted in the tombs of ancient Egypt, was so highly regarded that only temple officials were entrusted with the knowledge of the art, and it is significant that the Egyptian word for fish preserving was the same as that used to denote the process of embalming the dead[18].

7. Salting

Dried salt fish was part of a soldier's rations.

Roe from the mullet, a periodic visitor to the canals of the Nile, was also extracted during the drying process of the fish, to be pressed into large flat cakes and preserved [19]. Eggs were also preserved using salt. According to Varro, eggs could be preserved either by rubbing them with fine salt or by soaking them for 3 to 4 hours in brine and then cleaning them and packing them in chaff or straw[20]. Basically it was salt that gave meat a red color instead of the usual unappetizing grey. Nitrite in salt was the main component responsible for keeping red color and soft texture of meat. Studies made after wards also concluded that nitrite inhibits the growth of *Clostridium botulinum*, responsible for food poisoning.

8. Syruping

Honey was also used on a large scale for preservation of food. People of ancient cultures were well known with food preservation method using sugarcane juice or honey. Evidence of pre-historic man's art are obtained from caves of Hoshangabad (Adamgarh). One of the paintings from this cave depicts man obtaining honey from honey comb [21]. Therefore, it is assumed that people of ancient time utilized honey for food preservation besides eating purposes. Preservation with the use of honey or sugar was well known to the earliest cultures. Fruits kept in honey were common place. In ancient Greece quince was mixed with honey, dried somewhat and packed tightly into jars. The Romans improved on the method by cooking the quince and honey producing a solid texture [22]. The same favor of trading with India and the orient that brought pickled foods to Europe brought sugar cane. In northern climates that do not have enough sunlight to successfully dry fruits, house wives learned to make preserves – heating the fruits with sugars.

CONCLUSION

Some historians believed that food preservation was not only for sustenance, but also had cultural significance. They point to numerous items of food preserved on occasions, viz. beer or alcohol obtained after fermentation that had religious or celebratory meanings. Advanced of this cultural nature of preserved food is still prevalent among us. Therefore, it can be said that the above means of food preservation that was a constraint earlier, is now an important part of our living.

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