

The Cookery of Vegetables.

Ina F. Cowles.

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Introduction.

Importance.

Vegetables in general.

Classes.

Source.

Composition.

Food value.

Digestibility.

Cookery.

Methods.

Moist and dry heat.

Principle of cookery.

Objective point.

Cooking temperature.

Rapid cooking.

Gentle cooking.

General rules.

Time table for cooking.

French method.

Blanching.

Overcooking.

Undercooking.

Use of water.

Utensils.

Vegetables representing food principles.

Nitrogenous.

Peas.

Carbohydrate.

Potato.

Fat.

Nuts. Pecan.

Salad vegetable.

Lettuce.

Acid. vegetable.

Tomato.

Authorities.

The Cookery of Vegetables.

In the consideration of Cookery as a whole, the topics which present themselves for discussion are unlimited, for one may think of all the different food materials that are used and the various methods of cooking, and see in each one of them a subject concerning which much interesting information can be gained.

The subject Cookery of Vegetables is especially a broad one, for there are so many different forms of vegetable material used as food, and they play so large a part, in one way or another, in the economy of the world.

When we consider, that in all parts of the world there is found vegetable growth which is used for food; that all people live to a greater or less extent upon it; that a large part of the commerce of the world is due to the transportation of food material from one place to another, this material being to a great degree from the vegetable kingdom; that large factories and mills employing hundreds of people, are at work preparing this material for use; and that the pro-

duction of this food furnishes a means of livelihood for a large number of people, it becomes a very interesting and important subject.

The term vegetable, as commonly used, does not include much of the food obtained from the vegetable kingdom but is used more especially for the material grown in the garden. However, we will understand it to mean any food from the vegetable kingdom. Tho there are a large number of different kinds of vegetables, there are comparatively few that form a large part of the diet.

The importance of vegetable food is due partly to the fact that it is much cheaper than animal food, because the latter is vegetable food changed into another form thru a long process of growth. As was found during the Civil War, where many prisoners were almost entirely deprived of vegetable material, causing serious disease, this kind of food material is necessary to keep the body in a healthy condition.

The mineral matter which it contains is especially needful to the body as is also the acid, and the cellulose which furnishes bulk to the food. So when we remember that the

food value and digestibility of any food depends very much upon its preparation, the proper cookery of so necessary a part of the diet as vegetable food, should be thoroughly understood and practiced.

Classes.

Vegetable food may be divided into two classes, dry and fresh. Dry vegetables are represented by such materials as cereals, bread stuffs, rice, dried peas and beans, etc. Fresh vegetables are those which are commonly called by the name vegetable, as the roots such as potatoes, beets, and parsnips, the succulent vegetables as green peas and beans, corn asparagus and radishes, and the salad vegetables as lettuce, cucumbers and cabbage. Fruits, native and tropical, may also be spoken of as fresh vegetables, tho they are not commonly classed as such. Some, as the tomato are half way between the so called vegetable and a fruit.

Source.

The great sources of vegetable food are the grains, such as wheat, barley, rye, corn, oats, buckwheat and rice, which furnish the cereals and bread stuffs; the roots as the potato, turnip, beets etc; the peas, beans and lentils; the

fruits of all kinds, and the nuts grown in both temperate and tropical climates. Tea, coffee, and the spices are also of vegetable origin.

Composition.

All of the food principles, proteids, carbohydrates, fats, mineral matter, and water, are found in vegetable food, but it is as a rule rich in carbohydrates and poor in proteids and fats, tho some varieties, as nuts, contain considerable fat. It is composed largely of cellulose, it having been said that one half of the substance of most vegetables is formed of this; its frame work.

Vegetable protein is, so far as analysis is concerned, the same as animal protein but it is not so easily digested. The salts of potassium and magnesium are abundant in vegetables, more so than those of sodium and calcium. Different acids as citric, malic, tartaric and oxalic acids are found especially in fruits, and in acid vegetables as tomato and rhubarb.

The composition of wheat, which is the most important cereal because it contains a large quantity of the different food principles, is as follows:-

Starch ..	64 %
Gluten (proteid) ..	12.5 "
Cellulose ..	2.5 "
Water ..	13.5 "
Mineral ..	1.8 "
Fat ..	1.7 "
Sugar and gum ..	3.84 "

Rice contains a large percent of carbohydrates.

Water ..	12.4 %
Protein ..	7.8 "
Carbohydrates ..	79. "
Fat ..	.4 "

Ash .. 4. " Atwater.

Lentils are rich in protein.

Water ..	10.7 %
Protein ..	26. "
Carbohydrates ..	58.6 "
Fat ..	1.5 "

Ash .. 3.2 " Atwater.

Peanuts contain a large amount of fat and considerable protein.

Refuse ..	33. %
Water ..	6.2 "
Protein ..	17.3 "
Carbohydrates ..	16.3 "
Fat ..	25.9 "

Ash 1.3 % Atwater.
Food value.

The food value of vegetables is due to the carbohydrates, protein, salts and acids they contain. Vegetable food is not so likely to be diseased as is animal food and is for this reason, valuable. In cases of alcoholism and sometimes insanity, a vegetable diet is ordered by the physicians, on account of its being less stimulating than animal food, and vegetarians claim that it is much more healthful, while just as nutritious as a diet containing animal food. Thin vegetable purees or soups may be given in sickness.

Salads are especially valuable, because in their preparation there is no loss of salts.

They have a cooling effect upon the system and aid in digestion on account of the acids and condiments with which they are prepared.

Count Rumford, in his experiments in feeding the poor at Munich, Germany, found that vegetable soups were the most nourishing and least expensive foods.

Digestibility.

Vegetable protein or legumen is the most difficult vegetable nitrogenous material to digest. All vegetable constituents are more difficult to digest than those in animal food, especially the protein. The green vegetables are, as a rule much more easily digested than the dried ones. Unless finely divided, nuts are hard to digest on account of the substance being surrounded by fat. Though cellulose is not considered to be digested in the human being, it serves the purpose of furnishing bulk to the food, helping the peristaltic action of the digestive organs.

Cookery.

Vegetable material is prepared for food in various ways. Some is eaten raw, either with or without other material, while other kinds require a process of cooking before they are ready to be eaten. It demands difference in the manner of treatment in different stages of development, the young being more tender and easily cooked than the old.

Moist heat and dry heat are both used in cooking vegetables. With dry vegetables,

moist heat is of course necessary in order to give the food the needed amount of water. Thus cereals require long slow moist heat at $212^{\circ} F$. But dry heat is desirable, where it is possible, for there will then be no loss of flavor or of salts from the action of water.

They may be boiled, steamed, baked, sautéed, fried, or prepared in combination with other materials as in soups and salads. The principle of cookery in the large ^{numbers} of vegetables is the cookery of starch, and the objective point is to thoroughly cook the starch, loosen the connective tissue or cellulose, making the food easily masticated and digested.

In some cases, rapid cookery is best, as in the potato, helping to burst the starch grains, while in other cases long slow cooking is needed as in peas, beans, and the cereals. The cooking temperature is $212^{\circ} F$.

General rules.

Use vegetables as fresh as it is possible to get them, as stale ones are unwholesome and unpalatable. Those which are beginning to decay are unhealthful and are likely to cause disease. Sprouted veg-

etables are also inferior. Wash the vegetable or fruit thoroughly. Underground varieties should be rubbed with the hands, a cloth or a brush. Leaves should be washed and rinsed very thoroughly to remove all grit.

Pare, peel, shell or scrape according to kind and place in cold water to keep crisp and prevent discoloration, but do not allow to stand in the water too long.

Wilted vegetables may be revived by placing them in cold water, and this should be done, for wilted ones sometimes take twice the time to cook that fresh ones do.

In boiling vegetables, they are cooked in salted water, 1 tsp salt to 1 qt water, which should be at $212^{\circ}F$ the entire time of cooking. Twenty to thirty minutes is the usual time for cooking, though some kinds require longer.

Table showing time for boiling vegetables.

Potatoes.	20	to	30	minutes.
Asparagus.	20	"	25	"
Peas.	15	"	20	"
String beans.	20	"	30	"
Lima "	30	"	40	"
Spinach	15	"	20	"

Turnips.	30	minutes.
Beets.	30	" or more.
Cabbage.	20	"
Cauliflower.	20	"
Brussels sprouts.	10	to 15 minutes.
Onions.	30	" 40 "
Parsnips.	30	" 40 "
Green corn.	20	" 25 "
Rice.	15	" 20 "

Salt may be added at once or after boiling sometime. This addition of salt tends to prevent the escape of juices. Soda is often added to beans to soften the legumen and cellulose, the proportion being $\frac{1}{4}$ tsp to 2 qts water.

Delicate green vegetables require less water in cooking than others because of the amount of water in composition. Dried vegetables require long soaking in water before being cooked.

The French method of cooking them with the cover of the vessel removed, gives a better color and more delicate flavor, as does blanching also, which is done by parboiling the food five to ten minutes, then draining and adding freshly boiled water and

cooking until done. Vegetables should be drained as soon as thoroughly done.

The water in which most varieties are cooked should be saved, on account of the salts, such as potassium and sodium, in it, and it can be used in making sauces and soups. Overcooking gives vegetables a dark color and makes them indigestible. Undercooking should be avoided.

The water used for cooking them should be fresh, as that which has stood may absorb impurities and odors, and thus impair the flavor of material cooked in it. Water containing mineral matter also impairs the flavor, and the mineral matter in the vegetable may form insoluble compounds with that in the water, so it is best to use soft water. Nitrogenous vegetables especially form insoluble compounds with lime. Water more or less extracts certain parts of the food.

Canned vegetables should be flushed with cold water to remove the taste of the tin.

Agate, porcelain or stony utensils are the best to use especially if any acid fruit or vegetable is to be cooked, as the acid may act upon metal, corroding it and making

the food unwholesome.

Vegetables representing different food principles.

Peas.

Peas belong to the leguminosae family to which the beans and lentils also belong, and they are all representatives of nitrogenous food. Peas have long been known in China, Japan and India, and they grow in nearly all climates, being used as food for both man and beast. The seeds are used as food.

Legumes are much richer in protein than cereals, and are cheaper and more healthful than so much meat. Peas are made into flour, which is very nutritious, and it is used in soups. They are also canned and sold, the best being almost like fresh peas.

Green peas and dried peas differ in food value, the green ones being easily cooked and digested, while the dried ones have to soak and be cooked a long time and the skin rejected.

The composition of canned peas is as follows,
Water. 85.3 %

Protein.	3.6	%	
Carbohydrates.	9.6	"	
Fat.	.2	"	
Ash	1.1	"	At water.

The proteid material, legumen, corresponds to casein in milk and cheese. In cooking them, the objective point is to soften the cellulose, and the cooking temperature is $212^{\circ} F$. In using them for invalids and children, the hulls should be removed by passing them thru a sieve, as the hulls are irritating to the digestive tract.

Potato.

The potato is a representative of the carbohydrate food principle, and belongs to the nightshade family. It was discovered by the Spanish, near Quito, Peru, who introduced it into their own country, from which place it was taken into Italy and Belgium.

It was supposed to have been introduced into Virginia in the sixteenth century by the early settlers, and was brought from there to Ireland, where it was raised on Sir Walter Raleigh's place.

The plant was a great curiosity

and was raised only for that purpose for a considerable time, and was described and much written about in the papers of that time. It is now grown in nearly all climates, except the tropical which is too warm for it. There are many varieties, varying in size, shape, color and other qualities.

The parts used for food are the tubers, and they are also used for making starch. Its chief food value is due to the starch, and to some extent to the potassium and other salts contained in it.

Its composition is,

Refuse.	15.	%
Water.	67.1	"
Proteid.	1.8	"
Carbohydrates.	15.3	"
Fat.	.1	"
Salts.	.7	" Atwater.

The potato is deficient in protein and mineral matter and therefore should be eaten in a mixed diet. It may be boiled, steamed, baked or cooked in combination with other material. Baking is the best method, because there is no loss of salts.

Steaming is better than boiling, because water dissolves the mineral matter and is likely to favor loss of the juices, and for this reason, it is best not to remove the skin, when boiling them. Salt added to the water tends to prevent the escape of these salts and juices.

When the potato is peeled, the loss of the total amount of salts has been found to be 14%, while with the skin left on, it is only 3%. Rapid boiling is best, because it helps to burst the starch cells, which is the objective point.

The water of the potato is absorbed by the starch cells and they swell, and fill and burst the cells. When this water is only partially absorbed, the potato is watery or doughy, the cells being imperfectly separated.

Overcooking makes them waxy and indigestible, by changing the starch into dextrin. The cooking temperature is 212°F and the principle of cookery is the cookery of starch. New potatoes are less easily digested than old mealy ones.

Nuts.

The term nut is applied to a class of vegetables or fruit consisting of a single kernel enclosed in a hard shell. They grow on trees shrubs and bushes in all parts of the world, and are used for food and as a source of oil.

Edible nuts are rich in fat, and have a large amount of nitrogenous matter, with only a small per cent of carbohydrates, and are thus a very highly concentrated food. There are many different varieties growing in all climates, some of the most common being the almond, Brazil nut, filbert, hickory, pecan, English walnut, butternut, beech nut, cocoanut, chestnut and peanut.

Fifty to sixty per cent of the substance of common nuts is shell, and they contain but little water. On account of the fat in them, they easily become rancid. The meat of most of them contains nearly fifty times as much fat as wheat flour, and less than one-fifth as much carbohydrates.

Nuts are generally looked upon as somewhat indigestible, but one reason for this is that they are usually eaten after a hearty meal,

thus overtaxing the digestive organs. It is said that salt aids in their digestion.

It has been estimated that 1 qt of peanuts has as much protein as 1 lb of rump steak, and the steak would cost nearly three times as much as the peanuts. On account of the small amount of starch in nuts, they would seem to be good for persons who must avoid starchy foods.

They should be eaten in a mixed diet and there are various ways in which they may be prepared, as in soups, sandwiches, salads, stuffing for fowls, in cakes, candies etc.

Among vegetarians, they are used in many forms to take the place of animal products such as meat and butter. Patent preparations are made and sold such as nutose and peanut butter.

The pecan is a native of America, being grown in large quantities in Texas and other Southern states, and it grows naturally in the southern part of Kansas. It belongs to the hickory genus. The tree is tall, and in some cases, lives to be several hundred years old, and it thrives best in rich moist soil along the river banks.

The pecan nut is popular because of the thin shell and the ease with which it may be removed. It is a little over one-half refuse, the edible part being 46.8% of the whole. The composition of the edible part is,

Water.	3.0%
Protein.	11.0 "
Carbohydrates.	13.3 "
Fat.	71.2 "
Ash.	1.5 "

Lettuce.

Lettuce is one of the most delicate of salad plants, and has been known a long time, having been used by the ancients who thought that it counteracted the effects of wine. They also almost worshiped it, because the fragrance of the wild lettuce was said to have revived the wounded Adonis, who was loved by Venus, the goddess of beauty.

It probably was first cultivated on some Greek islands in the Mediterranean Sea and was introduced into England in 1520.

It is a low growing plant, the leaves of which are used for food, and it belongs to the succulent vegetables. The juice has a mild effect similar to that of opium, and has a cleansing cooling effect on the blood. As purchased lettuce is,

Refuse	18.0%
Water	77.1 "
Protein	1.1 "
Fat	.3 "
Carbohydrates	2.7 "
Ash	.8 "

The edible part contains

Water	94.0%
Protein	1.3 "
Carbohydrates	3.3 "
Fat	.4 "
Ash	1. " Atwater.

Tomato.

The tomato stands as a representative of an acid vegetable. It belongs to the same family as the potato, - the nightshade family, and is supposed to have originated in South America, having been cultivated in Peru and Mexico.

The tomato was known in England in 1597, and was supposed to be very poisonous, but was a great curiosity on account of the fruit, which was called love apples or golden apples. It was for a long time grown in ornamental gardens, but was mentioned in 1583 by a Dutchman as something to be eaten.

Its composition is,

Water.	94.4	of.	
Protein.	.8	"	
Carbohydrates.	3.9	"	
Fat.	.4	"	
Ash.	.5	"	Stwater.

One authority gives .7% of malic acid.

The cooking temperature for them is 212°F and the objective point is to cook tender and heat through. They should never be cooked in metal utensils, as the acid will corrode them and make the food unwholesome. They may be baked, stewed, eaten raw or combined with other material in soups, sauces, and seasoning.

The food value is due principally to its relishing properties and to the malic acid which is beneficial to the system,

95

having laxative properties and helping to digest the protein material.

The seeds are injurious to many persons especially invalids, and in such cases, they should be strained out. In opening canned tomatoes, they should be at once removed from the can, so as not to become poisoned by corroding the tin.

Authorities.

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