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CSIT-A

1) Explain the effect of cooking on nutritive values of food.

Several changes occur in food during its preparation. To obtain acceptable food products, it is necessary to understand & manipulate these changes.

A) color:

Color factors in food as anthocyanins, carotenoids, chlorophyll, etc, are affected by heat. In some cases, the color changes that take place in food on cooking are desirable while in some other cases the change may be undesirable.

→ chlorophyll:

The green pigment in plants, chlorophyll is relatively stable to heat. However, prolonged cooking in acidic mediums can change the color of green leafy vegetables.

→ Carotenoids:

Found in yellow, orange & red vegetables & fruits, carotenoids are resistant to heat & acidic mediums but may turn slightly blue in alkaline conditions.

→ Anthocyanins:

Responsible for red, magenta/ purple colors, anthocyanins are not significantly affected by heat.

B) Texture:

→ Cooking in general affects the texture of all food stuffs. The cellulose present in them becomes soft & this makes the foodstuffs also soften for example, cooked vegetables and fruits are much softer than raw.

The starch granules present in the raw foodstuffs get gelatinized in the presence of moist heat i.e, when they are cooked in presence of water, they absorb water & swell up, thus becoming soft & softer & finally some granules even burst & release the starch into the medium. This makes food easily digestable.

→ The texture of the food, after cooking is also dependent on the method which is used for cooking. All the moist heat methods i.e, boiling, steaming, pressure cooking and stewing makes the foodstuffs soft & tender.

C. Flavor and Taste:

The natural flavors & taste of the food is somewhat changed after cooking. However, the flavor & taste can be made to cater to one's taste buds with the help of appropriate spices & condiments. The spices & other flavoring agents used while preparing food & combination of natural flavours & taste of the foodstuffs impart a characteristic flavor & taste to the cooked food.

D. Nutrients:

1) Carbohydrates:

Starch, sugars, gums, cellulose are important carbohydrate found in foods. On cooking the starch granules in foods swell as they absorb water. This process is called gelatinization & is in fact the reason for the thickening

of soups, curries, stews to which corn flour paste is added. Gelatinization takes place in all starch containing foods such as potatoes on heating in presence of moisture.

2) Proteins:

Proteins harden & solidify / coagulate on cooking. The liquid sets on heating & becomes solid. This is process of coagulation. However, milk protein is an exception. Unlike other proteins it does not coagulate. Some pulses like soya bean and Bengal gram contain certain substances which hinder the digestion of proteins of these foods by the enzyme trypsin present in our intestines. During cooking these trypsin inhibitors are destroyed.

3) Fats & Oils:

Ordinary cooking has no effect on fat, but prolonged heating, as in the case of frying for long periods thickens and darkens the fat. A part of essential fatty acids present in fat are destroyed & toxic polymerized products are formed. These changes are accompanied by changes in flavor also, which may not be acceptable. Fats & oils, become rancid by action of air (oxidized) water (hydrolysis) and enzymes. These changes must be minimized, so that the food in which fat is used remains acceptable.

4) **Minerals**:

There is no loss of minerals in normal cooking procedures. If cooking water is discarded (a small fraction) water soluble minerals may be lost.

5) **Vitamins**:

→ Thiamin and Vitamin C are two vitamins, which are most affected by cooking. The losses may occur due to dissolved nutrients being discarded. Discarding the cooking water accounts for a loss of nearly 20 to 25 per cent of thiamin.

→ Vitamin C is most labile vitamin lost during washing vegetables after cutting, exposing cut vegetables to air for long periods before cooking and / or serving and leaching of vitamin C in the cooking water which is later discarded, amounts to a loss of 10-1. to 60-1. depending on the vegetables cooked & method of cooking used.

→ Vitamin A and Carotene are insoluble in water, so no loss occurs by discarding cooking water. There is slight destruction of vitamin A and Carotene during cooking in water due to oxidation by air. Frying, baking, roasting & toasting causes considerable losses of vitamin A & Carotene

what are the probiotics and explain the health benefits of probiotics.

Probiotics:

A probiotic can be defined as live microbial feed supplement, which when administered in adequate amounts beneficially affects the host animal by improving its intestinal microbial balance. Probiotics are live bacterial yeasts when ingested in adequate amount provides health benefits. There are always 2 types of bacteria in our body - good & bad bacteria. Probiotics are good bacteria that help to restore the natural balance of bacteria in your gut when it is disrupted. You can get probiotics from various supplements as well as from foods prepared by bacterial fumentation.

There are so many types of probiotics, but three are some specific types of bacteria that are common probiotics. These include:

1) Lactobacilli such as L. acidophilus, L. casei,

2) Gram-positive cocci such as Lactococcus, Streptococcus, Enterococcus.

3) Bifidobacteria such as B. bifidum, B. adolescentis

4) Saccharomyces boulardii

Health Benefits of Probiotics:

1) Probiotics help balance the friendly bacteria in your digestive system. Probiotics include "good" bacteria. These are live microorganisms that can provide health benefits when consumed.

2) They can help prevent & treat Diarrhea.

3) Probiotic supplements improve some mental health conditions.

4) may help keep your heart healthy by lowering LDL

cholestrol and BP.

5) May reduce the severity of certain Allergies & Eczema in children & infants.

6) May help boost your immune system a boost & inhibit the growth of harmful gut bacteria & reduce risk of UTI's in women by 50%.

7) They can help reduce symptoms of certain digestive disorders.

8) May helps with ~~gose~~ weight loss & Belly fat through several different mechanisms.