

Ways & Means to Minimize them on Fruit & Vegetables before Consumption

At the time of purchasing fruits and vegetables, these may appear clean and attractive. However, it is not feasible to tell the amount of pesticide residue, besides bacteria, dirt, etc that may still remain after these have been harvested, stored and transported. There are several ways & means to reduce pesticide residues on fruits & vegetables before consumption, as under:-

- (a) Procure fruits and vegetables from the market (local or produce stands) as far as possible.
- (b) Dry produce with a clean cloth towel or paper towel reduces residues.
- (c) Scrub firm fruits and vegetables, like, melons, root vegetables, like, carrot and tubers, like potatoes. Soft brush can be used to scrub the fruits and vegetables for five to ten seconds before rinsing with slightly warm water.
- (d) Discard outer layer of leafy vegetables, like, cabbage, lettuce, etc before washing as they grow close to the ground where soil could be tainted.
- (e) Peeling reduces residues considerably. Peeling and trimming fruits, like, mango, citrus, apple, pear, peach and kiwi and vegetables, like, gourds reduces pesticide residues.
- (f) Washing in clean running, preferably drinking, water reduces pesticide residues as it has abrasive effect.
- (g) Washing of vegetables, like, cauliflower, broccoli, cabbage, spinach and green beans with hot water containing 2 per cent common salt removes residues.
- (h) Carrot, okra, brinjal, cabbage and cauliflower, can be washed with 1 per cent tamarind solution.

- (i) Salad spinner can be used to wash and dry lettuce or leafy greens. Colander can be used, followed by drying with a paper towel.
- (j) Don't use any soap, detergents, chemicals, which could leave their own harmful residues.
- (k) Cut away damaged or bruised areas on fresh fruits and vegetables before eating/cooking. Discard any portion that appears rotten.
- (l) Vegetables and some of the fruits, which are consumed along with the peel, can be soaked in water in water for half-an-hour to one hour and rinsed a few times before use. Soaking fruits and vegetables five to ten minutes in a solution of diluted form of hydrochloric acid with four tablespoons of salt and juice of half a fresh lime and rinsingthoroughly with clean water helps in reducing residues. Use of dilute vinegar/acetic acid followed by thorough rinsing is also recommended.
- (m)Vegetables can be kept in boiling water just for a minute and rinsed in running thereafter to reduce pesticide residues.
- (n) Steaming and cooking of vegetables eliminate most of the residues that are not removable by washing or peeling.
- (o) Variety of fruits and vegetables helps in maintaining a balanced diet and also avoiding excessive consumption of pesticide residues from a small range of food items.
- (p) Juicing of fruits, like, grapes reduces the residue level. Clarification processes, such as centrifugation and filtering, further reduce the residues.

(q) Highly concerned individuals may opt for fruits and vegetables grown under Certified Organic Methods. However, even organically grown fruits and vegetables cannot be guaranteed for total freedom from pesticide residues though they might help in reducing the intake of pesticide residues. They are expensive too.

(r) **Lemon/Baking Soda Wash**

1Tbsb. lemon juice – (natural disinfectant), 2 Tbsp. baking soda (neutralizes the pH level of pesticides), 1 cup (250 ml) of water.

Put the mixture in a spray-topped bottle. Spray the fruit or vegetables, leave it to sit for 5-10 minutes, then rinse well.

(s) **Lemon/vinegar Wash**

1 Tbsp. Lemon juice – (natural disinfectant), 2 Tbsp. white vinegar (distilled works best) (cleans the fruits and vegetables and neutralizes most pesticides), 1 cup (250 ml) of water in a spray-topped bottle.

Spray the fruits or vegetables, wipe and eat.

(t) **Vinegar/Salt Wash**

¼ cup vinegar (cleans the fruits and vegetables and neutralizes most pesticides)
2 Tbsp. salt (draws out dirt and insects).

Just fill a sink or a large bowl with water and the above ingredients (depending on the method you choose) and let the vegetables sit for about 20 minutes, then rinse or else you can fill an empty water bottle and spray onto your produce and then rinse and wipe.

(u) **For particularly waxy fruit and vegetables:**

1 cup (250 ml) water, ½ a cup (115 ml) vinegar), 1 Tbsp. baking soda and Dash of grapefruit seed extract. Spray onto the produce and leave for an hour before rinsing and eating.

(v) Exposure to ozone gas (O_3) and dipping in ozonated water helps in reduction of pesticide residues. Gaseous ozone treatment during storage degrades contemporary pesticides. Ozone sanitation method does oxidize pesticide residues. An extended wash in clean water can help further reduction in pesticide residues. Some companies have started marketing the equipment for ozone sanitation.

(w) Some of the Commercial Fruit cleaners available on the market are made up of 100% natural produce – normally some form of citric acid. These claim to remove wax, pesticides and 99% bacteria. However, ammonia-based products to be avoided.
