



DR MUNIRUDDIN AHMED

Hazardous practice of ripening fruits by using chemicals

MOST of us are familiar with a well-known proverb – “An apple a day may keep the doctor away”. However, this cannot be taken as guaranteed anymore, as those want to eat fruits on an almost daily basis may have to think twice now before consuming a mango or banana. Rather than keeping the doctor away we may need to rush to the doctors if we consume local fruits artificially ripened by chemicals on daily basis. Some unscrupulous traders are resorting to a potentially poisonous method to ripen fruits in one to two days to earn quick profit.

Although fruits are supposed to naturally ripen in trees, to quicken the ripening process, the traders have been using chemicals. It is not always convenient to carry and supply ripe fruits as they get spoiled quickly. So traders pick unripe fruits and then use artificial methods to increase their shelf lives. For many years, ethylene had been used as a fruit ripening agent, but nowadays artificial ripening of fruits are done by ethane, calcium carbide and ethephon. But the problem is that, incorrect use of these chemicals to ripen fruits is associated with many health hazards. In the USA, the ripening is done through gas emission systems or ethylene generator systems, depending on quality and shelf life desired.

Calcium carbide is a chemical substance widely used in gas welding for steel products. It has carcinogenic properties and contains traces of two other dangerous chemical components known as arsenic and phosphorous as impurities. Symptoms of arsenic poisoning begin with headaches, confusion, severe diarrhea, and drowsiness. As the poisoning develops, convulsions and changes in fingernail pigmentation called leukonychia may occur. When the poisoning becomes acute, symptoms may include diarrhea, vomiting, blood in the urine, cramping muscles, hair loss, stomach pain, and more convulsions. The organs of the body that are usually affected by arsenic poisoning are the lungs, skin,

kidneys, and liver. Arsenic is related to hypertension related cardiovascular disease, cancer, stroke, chronic lower respiratory diseases, and diabetes. Most cases of arsenic and phosphorous poisoning are detected before they become life threatening and if not treated on time, these can prove fatal. Calcium carbide can cause mouth ulcers, gastric irritation or even food poisoning.

Calcium carbide is used extensively for ripening mangoes, bananas and

stem is dark green while the fruits are all yellow.

Ethrel is another chemical used for ripening fruits. Ethrel is commonly used in Australia and India. A small amount of ethrel is dissolved in water, and containers are placed around the room. The fruits are then piled up in the room, and sodium hydroxide is added to the mixture. All ventilation of the room is then closed tightly, and the fruits will ripen in three to five days by the ethylene gas

ripening agent used. It is perfectly ok if the fruits are ripened artificially using ethylene gas. But artificially ripened fruits can be hazardous for health if calcium carbide is used. We shall be surprised to know that fruits are artificially ripened in America also. Say for example, bananas are shipped to the US as hard, green, unripened fruits. They arrive into a distributor's warehouse, without discoloration of the skin. The bananas are put in a room and sprayed with ethylene gas. They all begin to ripen and the consumers buy them at the store. The ripening process is so rapid that the bananas are taken out of the store within a few days before the consumers can consume them all.

It is very difficult for the common consumers to understand whether the fruits have been ripened naturally or artificially. It may not be also perceivable to the common people which kind of agent has been used for ripening process. To overcome all sort of confusion and problems, we can at least pay some attentions before buying and eating fruits for the sake of our health. Following tips may help you. Presence of trace amount of arsenic and phosphorous in carbide makes the healthy fruits poisonous. So wash the fruits thoroughly before consuming. Keep the fruits under running water for a few minutes, so that the chemicals are washed away. Do not buy fruits when these arrive in the market before the due period. You can be almost sure that they are artificially ripened for better marketing and earning profits. While eating mangoes and apples, cut the fruit into pieces, rather than consuming directly. What looks attractive outside may not be always good for health. One can distinguish the artificially ripened fruit by the uniform skin colour in fruits like tomato, mango, papaws, etc. A bunch of bananas having a uniform colour are more likely to have been artificially ripened.

Although fruits are supposed to naturally ripen in trees, to quicken the ripening process, the traders have been using chemicals. It is not always convenient to carry and supply ripe fruits as they get spoiled quickly. So traders pick unripe fruits and then use artificial methods to increase their shelf lives. For many years, ethylene had been used as a fruit ripening agent, but nowadays artificial ripening of fruits are done by ethane, calcium carbide and ethephon

papayas, and sometimes apples and plums artificially. The carbide is imported from countries such as China, Taiwan and South Africa. The low price of the carbide - 250g for Tk. 25 results in their indiscriminate use by the unscrupulous traders. When calcium carbide is dissolved in water it produces acetylene gas. Acetylene gas is an analogue of the natural ripening agents - ethylene produced by fruits. Acetylene imitates the ethylene and quickens the ripening process. Close scrutiny can make it possible to identify fruits that have been treated with carbide. When tomatoes are uniformly red, or mangoes and papaws are uniformly orange, one could easily make out that carbide may have been used. Plantains can also be identified if the

produced by the reaction with water. The gas ethylene is the natural ripening agent found in fruits. This substance ensures that there is a uniform ripening of the fruits, in addition the fruits retaining their flavour. In both methods of ripening process, calcium carbide and ethrel cause serious problems when they come in contact with the fruits. When the unscrupulous traders dip the fruits in calcium carbide solution, they get contaminated with arsenic and phosphorous. This process of ripening fruit is dangerous for health.

However, not all artificially ripened fruits are bad. In fact, the concept of artificially ripening fruits is not bad either. It is important to know that the effects on health of artificially ripened fruits depend on the

The writer is a Professor of the Faculty of Pharmacy of Dhaka University and former Pro-vice-chancellor of East West University.