

Adulterated food: Thoughts from an expatriate

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After a long hiatus from Bangladesh, recently along with my family I had an opportunity to spend one month in Dhaka. The trip has a lasting and melancholic effect in my every day ritual of thinking about Bangladesh. I am afraid to let go the nostalgia lest my conscience would not forgive me for not thinking about my beloved country. How proud was I to tell my twelve-year-old daughter that Bangladesh can now offer her many of the amenities to which she is accustomed. I have seen how Bangladesh is leaping forward in many sectors such as telecommunications, housing, banking, and garments and how the determination and aspirations of young people are creating the tremendous societal upheaval.

I do not want all my happy memories to be marred by my inner-self that constantly argue and in some cases convincingly, that this apparent development in real economic sense looks very hollow. I did see a sea of cars in the street of Dhaka, but I have not seen any changes in the face of the destitute people that I was used to see 15 years ago who are still a plentiful on its streets. I spent 10 minutes in line and paid Tk. 180 to buy four stamp size chicken nuggets from a 'posh' first food restaurant, whereas paid only Tk. 35 to buy a kg of papaya from the local market. The material mentality of the rich society, enormous economic disparities between the haves and have-nots left me wondering whether the progress we see is mainly geared to a special section of the society. Anyway, the economics pundits would be in a better position to comment on why the rule of income distribution seems to be skewed towards a specific section of the society in the Bangladesh economy. As a science educator, my intention here is to make some comments on the ongoing campaign to curb the societal malaise of making adulterated foods in some sectors of food industry.

The ongoing campaign to fine the perpetrators of such heinous crimes has widespread support throughout the country. Amid many administrative shortcomings, Magistrate Rokunudhoula courageously spearheading the campaign and he is standing tall enough to dwarf the widely held apprehensions of government officials succumbing to bribes or to pressure from superiors. Let me take this opportunity to congratulate him with an American way of complementing -- 'you are doing a heck of a job Rokun' (No connection to the Pres. Bush's infamous compliment to FEMA Chief Brown after hurricane Katrina in Louisiana, USA).

Though I highly applaud the efforts of current campaign, I respectfully beg to differ on the priority list on which the campaign is being conducted. Day after day, we see in the newspapers that Magistrate is visiting many food manufacturing sites and finding unhygienic conditions. However, I am appalled by the images of seeing him smelling foods to find out adulteration. Shouldn't some experts who can detect adulterated foods accompany him? I am sure that some samples are sent to BIST for chemical analysis but I had not seen any report where, based on the BIST report, the perpetrators had been fined or imprisoned. The troubling area is that he has to spend most of his time detecting rotten food, unhygienic food preparation area, expired foods, etc. These kinds of situations are widespread in Bangladesh. It is a habitual offense that needs to be addressed by public awareness and education. Simply, taking these kinds of expired or rotten foods in our stomach would definitely make us sick but will not make us gravely sick. If someone consumes brick powder along with red-pepper powder, it will make him sick for sometime, but consuming formalin fixed fish, urea tainted Muri, mobile mixed oil cooked foods would surely kill him slowly.

For example, formaldehyde -- the active ingredient of formalin -- is unequivocally known to bind cellular proteins and genetic materials that ultimately results in cancer and birth defects. I hope many will agree with me that curbing these kinds of chemical adulteration of consumable foods needs to be dealt with utmost priority. Special task force is necessary to nab those criminals on the spot using scientific evidence. It saddens me a great deal to see that this area has been put in the back burner on the priority list. I was taken aback to find out how widespread the disease has gone through the society just to make some quick bucks. I purchased a big fish from a roaming vendor in front of my house. Out of the agreed Tk. 800

for the fish, I gave the seller Tk. 500 and asked him to come back in the afternoon to get the rest of the money, provided that a piece of the fish pass a simple test for formalin fixation. I told him that I would keep a piece of the fish outside and in case of formalin fixation of the fish, the piece would not rot. Sure enough, the seller did not return to get the money nor did the fish piece rot. Now, if you ask the concerned authority about why this matter is not addressed seriously, the usual response would be lack of fund and/or lack of scientific equipment to detect chemicals in tissues.

As soon as I returned to my lab, I started to think -- is it too expensive or just a technological barrier that deter the test for presence of formalin in biological samples? Not being a chemist, I turned to the power of Internet, mainly to Google. In only five minutes of search on formalin detection led me to identify many simple but robust methods that are routinely used to detect formalin. I ordered a few milliliters of a watery liquid that turns to pink to red in the presence of formalin. A very simple but effective method. The readers can see in the accompanying illustration that the method can efficiently detect presence of formalin in a piece of fish sample. To add to the power, it took me only one minute to see the colour development in the fish sample soaked with formalin, which should allow on-the-spot detection. The bottom-line: Had we seen some fish traders involved in formalin fixation of fish were arrested based on scientific evidence, I am sure they would have thought twice to continue such repulsive practice. I hope concerned authority would take strong action to curb this malaise; otherwise, the concerned consumers might start going to fish market with a small bottle filled with the liquid to detect formalin. Test strips for detecting the presence of urea in any samples are also sold from many chemical companies in the USA. If urea tainted muri is soaked in water, then those test strips can easily be used to detect the presence of urea.

On another note, I feel that our journalists could do more in curbing and creating awareness about the chemical adulteration of foods. Whenever there is any news on ripening fruits by chemical, I see blanket accusations and name of horrible diseases that could result from eating these fruits. However, careful research into the topic of chemical induced ripening would have revealed that throughout the centuries, use of chemicals in fruit ripening was widely accepted in societies, and was even described in ancient texts. Hundreds of years ago, the Chinese placed weighted lids on growing bean sprouts to promote thickening and crispness, which is now identified as due to ethylene gas (plant growth hormone) production. The ripening chemical was used unknowingly to ripen bananas in both East Africa and Samoa by burying them in fire-warmed pits. Use of kerosene heaters in closed space to ripen citrus food has been in use since 1920's. If you drive your car in summer with some green bananas in the trunk, you would notice the bananas ripe very quickly and you will not hesitate to eat those bananas. The acceleration of ripening of the banana in the car trunk is simply because of production of ethylene gas from the combination of heat and hydrocarbon emissions from auto exhaust.

In the 1920's it was shown that the cause of this ripening effect was ethylene gas, which was indeed produced by plants. To mitigate the concern of health effects of ethylene treatment, numerous high powered scientific studies from 1930's showed that the ethylene treated fruits were equivalent in quality and "healthfulness" to naturally ripened fruit. This is largely because the fruit must have reached its physiological green maturity stage in order to respond to external ethylene, and then the ripening changes triggered by ethylene are essentially the same between the treated and naturally ripened fruit. Ethylene and calcium carbide that produces ethylene precursor acetylene are on the National List of Allowed Synthetics in the USA. I have collected all these information just to initiate an argument to make a point in favour of regulated chemical ripening of fruits. In the USA, most retailers will not buy any fruit until they exactly know the shelf life of the fruits and by use of ethylene gas, producers can guarantee the exact timing of the ripening process.

Ethylene or calcium carbide induced fruit ripening process, which by all account been proved safe in the western world should be treated not as a malaise but a helper to poor farmers. On this note, I want to touch another contrasting area that is deemed as safe practice in the food industry. MSG (tasting salt) which on the surface seems completely innocuous is in reality the

salt that has been identified as a carcinogenic agent. Even the Chinese restaurants in the USA do not use MSG anymore as many safer alternatives have been developed that allow same taste to the Chinese foods. I hope soon in our restaurants we would see signs that would read 'We do not use MSG in our foods'-- a sign that has become a permanent fixture in Chinese restaurants in the USA.

My intention was not to criticise anybody or any sector within our society but to educate concerned citizens about some of the irregularities that are prevalent in our society. I would hate to see prevalence of such irregularities in a country that educated me in protesting wrongdoing. I want to see these irregularities corrected so that I can continue to boast to my foreign friends about the positives of Bangladesh like my experience of surfing internet on a cell phone in Dhaka. Whenever I hear foreign friends equating flood and famine with Bangladesh, I respectfully remind them that I have used ATM machine in Bangladesh to draw money from my bank in the USA. Keep growing Bangladesh. We want to see you stand tall among your neighbours.