

Nutritional Quality of Fruits during Pandemic Covid-19

Kamran Abbas Mirza and Mahvesh Shaikh

Department of Zoology, G. M. Momin Women's College, Rais High School Campus, Thana Road, Bhiwandi, Dist: Thane - 421302, Maharashtra, India.

*Corresponding author: Kamran Abbas Mirza.

ABSTRACT

Fruits are universally promoted as healthy. Everyone eats different kinds of fruits daily by thinking that it contains a lot of vitamins and minerals. But do they really contain lots of vitamins and minerals today also. The research on fruits has been done a long time ago when there were no adulterants and today as we all know adulterants are used to enlarge the size of the fruit and to make it look fresh even its stale from inside so by using certain techniques, we can find that how much proteins and minerals we can get from the fruit which have been adulterated and how much the adulterants used are affecting our body.

Keywords: Fruits, Vitamins, Minerals, Affecting Adulterants.

INTRODUCTION

Currently Covid-19 pandemic is a leading challenge all over the world. To prevent virus infection, it is critical to achieve and maintain a healthy nutritional state. Optimal nutrition and dietary nutritional requirements have an impact on immune system, strengthening immune system is the only long-term method to live in the current environment [1]. There is no proof found that dietary supplement can cure the immune system except Vit C, which is one of the best ways to improve immune system. An adequate intake of Protein, and vitamins A, B₁₂, B₆, C, and E is essential for the maintenance of immune function [2]. COVID-19 has provided a new set of obstacles for anyone trying to maintain a healthy diet in the current situation. Which increase the demand of fruits leads to the higher consumption and Adulteration in Fruits [3]. Fruits are consumed in every form in order to support the different biochemical and physiological activities of our body. Most of the times, these Fruits are prone to Adulterated [4].

Common Adulterant used:

Adulteration of food items began a couple of decades ago and this practice is increasing day by day. Fruits are adulterated with calcium carbide, ethephon, formalin, injections of colors and sweeteners [5]. i.e. Apples are sold in the market at 120-150 Rs/kg. From 1 kg of fresh apple, how much fresh juice can we obtain. If we realize this then why do we expect to get about 200 ml of any fruit juice with 20 Rs. only. Again, we need to change our attitudes and expectations.[6]Consumption of adulterated food items may cause asthma, sore throat, larynx constriction, bronchitis, skin infections, allergic reactions, diarrhea, hematuria, circulatory failure, numbness, dizziness, kidney failure, stomach cancer, liver cancer, nervous disorders and many other diseases [7].

The objective of this work is to determine the nutrients content of some common fruits available in markets.

Materials and methods:

Samples of fresh fruits were purchased from a local market located in city. All the samples were thoroughly cleaned with distilled water to remove adhering contaminants. All reagents used were of analytical grade.

Sample preparation:

100 g of each sample was cut into small pieces, blended together with 50 mL of distilled water using an electric blender, and then filtered. The filtrate was transferred into a 500 mL volumetric flask and the flask was filled up to the mark with distilled water. [8]

The Bradford Method: The Bradford assay was conducted according to the method described by Bradford for protein estimation.

Determination of Vitamin C by titrimetric: the extract 20 mL of the sample solution was pipetted into a 250 mL conical flask. 150 mL of distilled water was added into the flask followed by 1 mL of starch indicator solution. The sample was then titrated with the 0.005M iodine solution until a dark blue-black color was persisted due to the starch-iodine complex. Titration was repeated until three titers are obtained that agree within 0.1 ml.

Determination of Calcium by titrimetric: A 25.0 mL sample of each digest was pipetted into a beaker and 1M NaOH solution was added to adjust the pH to 12-13. Two drops of solo chrome dark blue were then added and immediately titrated against a 0.01M EDTA solution to the blue end-point.

RESULT AND DISCUSSION

Nutritional Values of Some Fruits

Nutrient	Orange	Guava	Banana	Musk melon	Dragon fruit
Protein					
Normal value	1.3 gm	2.55 gm	1.09gm	0.84 gm	1.2 gm
Conventional	1.0 gm	2.55 gm	0.89gm	0.64 gm	1.02 gm
Sugar					
Normal value	12 gm	8.92 gm	22.84gm	12gm	13gm
Conventional	15 gm	10 gm	28.84gm	12gm	11 gm
Vitamin C					
Normal value	92 gm	228.3mg	8.7mg	40.56 mg	4.5 gm
Conventional	85 gm	189.7mg	4.6mg	20.56 mg	2.9gm
Calcium					
Normal value	5 gm	18 mg	1 gm	-	53 gm
Conventional	5 gm	10 mg	0.5 gm	-	18 gm
Potassium					
Normal value	3gm	378mg	258mg	331.00 mg	286.47 mg
Conventional	5gm	417mg	358mg	531.96 mg	399.5 mg

The prepared fruit samples are analyzed for Protein, Vitamin C, Sugar, Calcium, potassium suspension converted to mg/100g of daily value. Each value is the mean value of triplicate analysis. In analyzed fruit, Protein ranged from 0.84 to 2.55gm/100g, potassium from 258 to 5000mg/100g and Calcium from 5 to 53gm/100g, of the sample [7]. The top fruit in the rank order of higher protein guava 2.55gm/100gram higher sugar in Banana 28.84gm/100gram, higher vitamin C content in Orange 85gm/100gm as compared to musk melon and dragon fruit which are slightly low as compared to daily value demand [8] One of the major reason of fruits lost it nutritional content is no proper cultivation or handling and adulterated to achieve fast growth of fruits cheaply available in market. It cannot full fill the dietary requirement of individual as well as may cause an acute or chronic disease due to the adulteration

CONCLUSION

It's been found that fruits have many benefits but because of adulteration we are unable to get the nutrition. Organic fruits are very costly for everyone to afford them and hence people look upon for conventional fruits. So, are we are looking forward to healthier and happier India. The answer is hidden somewhere within our minds and hearts.

REFERENCES

- [1]. World Health Organization Nutrition advice for adults during the COVID-19 outbreak. <http://www.emro.who.int/nutrition/nutrition-infocus/nutrition-advice-afor-adults-during-the-covid-19-outbreak.html> 2020 19/06/2020]; Available from.
- [2]. Jayawardena R. Food consumption of Sri Lankan adults: an appraisal of serving characteristics. *Publ Health Nutr.* 2012; 16(4):653–658.
- [3]. Jayawardena R. Enhancing immunity in viral infections, with special emphasis on COVID-19: a review. *Diabetes, Metab Syndrome: Clin Res Rev.* 2020;14(4):367–382.
- [4]. Bousquet J. Is diet partly responsible for differences in COVID-19 death rates between and within countries? *Clin Transl Allergy.* 2020; 10:16.
- [5]. Dang Y. In vitro and in vivo studies on the angiotensin-converting enzyme inhibitory activity peptides isolated from broccoli protein hydrolysate. *J Agric Food Chem.* 2019; 67(24):6757–6764.
- [6]. WHO, 2009. General information related to chemical risks in food. www.who.int/foodsafety_chem_general_en_index, 22 December 2009.
- [7]. Wooster, G.A., Martinez, C.M. and Bowser, P.R. 2005. Human health risks associated with formalin treatments used in aquaculture: initial study. *N. Am. J. Aquac.* 67, 111-11
- [8]. FAO, 2010. Improving food safety, quality and food control in Bangladesh. Food inspection and enforcement in Bangladesh: current arrangements and challenges by Food and Agriculture Organization of the United Nations, October 2010. www.bdfoodsafety.org.
- [9]. Gopalan C., Ramasastri B.V., Balasubramaniam S.C., Nutritive Value of Indian Foods. Indian Council of Medical Research, Hyderabad, India, 2000.
- [10]. Petrovich M.B., Filho V.R.A., Neto J.A.G., 2007, *Ecl. Quím.*, 32(3), 25.
- [11]. Dawson-Hughes B., Harris S.S., Palermo N.J., Castaneda-Sceppa C., Rasmussen H.M., Dallal G.E., 2009, *J. Clin. End. & Metab.*, 94, 96.