

Significance of organic food towards human health in the present Covid-19 Time

Deepa Tomar¹, Monika Sharma² and Chandra Kant Sharma^{3*}

¹*Institute of Agriculture Sciences, SAGE University, Indore 452 020, M.P., India*

²*Department of Bioscience and Biotechnology, Banasthali Vidyapith, Banasthali, Rajasthan, India*

³*Dean, Faculty of Agriculture, Principal, College of Agriculture, Parul University, Limda, Vadodara (Gujarat) 391760, India*

(Received 4 June, 2020; accepted 18 July, 2020)

ABSTRACT

This article emphasizes about the health value of organic foods and presents a quality framework for estimating the scientific impact of these studies. Covid-19 attacks people with low immune systems and especially people of under and over ages. Immunity is based on favourable live bacteria which live in the gut for shielding the human body from a variety of ailments. At the time of weak, low or damaged immune system, it is prone to diseases for instance due to corona virus (Covid-19) or other ailments like heart disease, diabetes or cancer. Vegetarian foods increase and help the intestinal beneficial bacteria, as well as the by and large gut micro biome wellbeing, which makes up to 85% of the body's immune system. Increasing the demand for organic food materials as well as increasing health consciousness goal among the people in the present scenario led the researcher to study about the nature and behaviour of consumer towards the organic products, its pricing, and awareness of consumers towards organic products in a more drastic way. Organic food has high nutritive value through which prevent various risk factors towards allergic diseases, obesity and cancer. For that follow different approaches towards the farming in agriculture system which includes the lack of chemical uses, lack of pesticides, agro ecological system, integrative approach which may result into beneficial system towards the human health care system. Presence of some bioactive compounds may give beneficial results towards the growth and development of the human health system. In this study we have covered the benefits of organic foods, compared some parameters of nutritional values of organic food and convectional food.

Key words : Organic food, Covid-19, Human health

Introduction

Covid-19 attacks people with low immune systems and people especially people of under and over ages. The immune system is built on beneficial live bacteria that live in the gut which protect the human body from various diseases. When the immune system response is low, weak, or damaged, it becomes

an open invitation for infections such as corona virus or other diseases like diabetes, heart disease, or cancer. Plant-based foods increase and help the intestinal beneficial bacteria, and the overall gut microbiome health which makes up to 85% of the body's immune system (Arshad *et al.*, 2020). Organic food is food produced by method that complies with the standards of organic farming. Stan-

dards vary worldwide. Organic farming characterised practices such as Resource cycling, promote ecological balance, and conserving biodiversity. According to Ramesh and Divya (2015), the term "Organic" refers to the way agriculture products are grown and processed. Organic crops should be grown in safe soil, have no moderation and must remain detached from conventional products. Farmers are not allowed to use synthetic pesticides, bioengineered genes (GMO's), petroleum-based fertilizers and sewage sludge-based fertilizers. There are many benefits of organic food in human health such as; it reduces the risk factors of allergic diseases, overweight, obesity and several diseases. The most important thing is in organic food the use of pesticides was restricted now. Organic food includes many nutritionally relevant compositions as compared to the conventional foods. It has higher content of phenolic compounds, higher antioxidants level, anti mutagenic activity as well as better inhibition of cancer cell proliferation of organically produced food. Higher the omega-3 fatty acids in organic meat and pesticides level in their dairy products. It also reduces the risk of certain allergic diseases, obesity, pre-eclampsia etc. Mie *et al.* (2017). There were some main problems regarding to the sale of organic food. Such as; higher price premiums, insufficient availability, low confidence in certification bodies, organic labels, satisfaction with the current various food sources Baranski *et al.* (2017). But there are various non clinical like *in vitro*, *In vivo* and clinical studies done on the nutritive value of the organic food which suggested that these food materials are good for our health system, prevention of various kinds of diseases, risk factors in our human life system Rembalkowska (2016). It is one of the fastest growth sectors which increase of approximately 250 % in the last 10 years. The global organic food market reached a value of 45.8 billion in 2013, 47 % of the global market was in Europe. They have a better nutritional value, taste; in addition, the organic farming is more environments friendly and provides the better animal welfare (Baranski *et al.*, 2017).

Organic Food

This is review based research paper. The Pattern emerging from review will constitute the course of future researches and also would explore the parameters or variables for further exploration by finding research gaps. The study can also lead to

longitudinal studies and phenomenological studies with implications in Organic Food. The data are collected from the various research papers, research articles, various journals and, combined it to form a generalised conclusion of given data in the form of Table mentioned below. The data and information collected will be processed and its findings presented in a systematic manner.

Composition and Content of Organic food

Chakrabarti (2010) and in a French study, a cancer specialist studying the nutrient qualities of food grown in the Languedoc-Roussillon region of France showed that for the twelve foods where, the organic foods showed increased quantities of vitamins A, C, E, and the B group, increased elements such as zinc, minerals such as calcium, and increased fibre content (Paul and Rana, 2012). In the organic foods there is a presence of an Omega -3 fatty acids which plays an important role in the prevention of an pre- eclampsia effect in the body, inhibited the hyperactivity of the neural channel for the transmission of the impulses from one neuron to another one with producing effect of clonic, tonic on body Hurtado *et al.*, 2019).

This review gives update and preferences for the consumers for the organic food and also complies the scientific evidence for compositional differences and health benefits of organic as compared to conventional food.

Benefits of Organic foods towards Human Health

The organic foods are also responsible for the preventing malignancy condition in our body due to the antimutagenic activity, as compare to the conventional foods, commercial food materials. Due to this there is inhibition of the rapid unwanted multiplication of the cells in our body Rock *et al.* (2017). People who had trust on health benefits, taste and conservation of environment and believe to improve their lifestyle as it may be the future consumers of organic food. Consumers were concerned about the impact of environmental damage on their health and safety (Paul and Rana, 2012). These organic foods play an important role in preventing a various kind of diseases in childhood age group like ectopic eczema, allergy and maintained some positive health status (Rock *et al.*, 2017). As we know these organic foods contain the antioxidative content like phenolic acid, which plays an important role in the prevention of some free radicals presents

in our body. When these free radicals developed in our body it produces various kind of toxicity, illness in our body. When these antioxidants are combining with the free radicals so they inhibit the mechanism of developing toxicity in the body. Hence the risk of various kinds of disease condition and illness prevented by such properties of organic substances Kancheva and Kasaikina (2013). As in U.K., public demand and awareness of risk for food safety are the important factors to make best agricultural practices. In that study, over 700 convectional and organically produce buyers are surveyed in the Boston area of U.K., in order to study about food safety risks. Survey revealed that consumers recognize with high risk accompanied with consumption of conventionally grown produce as compared to organically produce. Over 90% of survey For example, 90 % of surveyors viewed as decrease in pesticide residue risk accomplished with organic products and about 50% risk reduction due to natural toxins and microbial pathogens. Following are some of the research which is done in order to compare organic food and convectional food Williams and Hammitt (2001). In a latest study, Scottish scientists found that organic vegetable soups contain almost six times salicylic acid as in nonorganic vegetable soups. As per Baranski *et al.* (2017) there are many benefits of organic foods in the human health such as higher antioxidant activity, It reduces the risk of a cardiovascular disease and neurogenerative diseases and certain cancer due to the increased intakes of the polyphenolics, organic food has higher concentration of nutritional value omega fatty acids. organic milk was reported as a higher level of the conjugated linolenic acid (CLA). Higher iron and

atocopherol concentrations. CLA is beneficial for the health reported as in study of the in vitro and in vivo studies.

Interest towards organic food quality

There are following qualities of our organic food farming which attract many consumers on the basis of following grounds;

These organic foods material is now a fastest growth sector in our food market. The consumer has a positive attitude towards organic foods, trust in the organic label, relational develop channel system, having the low-cost price scenarios (Liang, 2016). It was evaluated that consumer having a strong perception towards an organic foods and vegetables for the purchasing, buying these food products in the market due to their benefits in health aspects (Saba and Messina, 2003). There is association between various perceptions, conceptual images and preferences towards the concept of the organic food in the consumers by developing the various grounds of questionnaire pattern to the consumers and resolved them on the basis of their economic ground. There are many objectives which are made to resolve their concept (Bonti and Yiridoe, 2006) such as implications of economic to the organic food in the consumer demands, shoppers attribute towards organic and conventional foods, level and awareness to the consumer's knowledge in the organic foods, assessment criteria. Research findings of the study are although consumers feel that these products are crucial to get and also expensive, then also most of them accept it in a positive manner. All consumers ally with these organic products despites of all obstacles, at various levels wish to have good, tasty

Table 1. Some Parameters of nutritional value and metals in between organic food and conventional food given by Hallman (2012).

S. No.	Parameters	Organic Food	Convectional Food
1.	Antioxidants	More	Less
2.	Toxic metals	Not present	Present
3.	Protein	Present	Present
4.	Nitrogen	Not present	Mostly present
5.	Nitrate	Not present	Mostly present
6.	Saturated fatty acids	Absent	Mostly present
7.	Iron	More	Less
8.	Iodine	Less	More
9.	Selenium	Less	More
10.	Omega-3 fatty acids	More	Not present

and healthy products for their good health Zanolini and Naspetti (2002). These organically produce food are having less calorific values, higher willingness to pay and easily attract the consumers in the market. They possess more nutritional values like lower in the fats, higher in the fibres, absence of food additives residues, low calories in case of organic cookies etc which makes more nutritious and healthier than of the other convectional foods. Organic label can attract, sale, produces and increase the manufacturing of the organic food in the market values Lee *et al.*, (2013). The market for organic food products is growing very rapidly all over the world. These organic foods meet with the proper certified standards which are helpful in complete procedure starting from production to the marketing Brantsæter *et al.* (2017).

USDA Certification for Organic foods

In 2002, the USDA (United States Development of Agriculture) has executed that the standard certified values for the food items encounter towards the development of the organic grown agricultural products which includes starting from production to the processing of the products. This standard value given by the USDA certifying the parameters of organic food on following criteria's, such as handling of the organic food items, production of food items and agriculture products where grown as organically.

These parameters are important towards the consumers in the market. Hence, they develop some certification for the foods products. This certification gives an assurance towards the health parameters as compared to those food items which are not certified according to them Guilabert and Wood (2012).

Organic farming – a goal towards organic food

Organic farming is best for commence from Wildlife, Ecosystem, farmers and finally to the Consumers. The form of agriculture that relies on techniques

such as crop rotation, green manure, compost and biological pest control is known as 'Organic Farming'. A typical organic field has five times as many as wild plants, 57% more species, and 44% more birds in cultivated areas than a regular farm. With the organic farms outperforming all others in supporting biodiversity, more and more countries are heading towards practicing organic farming. Organic standards procedures is different in various countries, many of the countries have their own organic certifying bodies, despite some of having regional regulations for this (Dangour *et al.*, 2010). Today, it is understandable to the agricultural society that organic farming is the best option for not only protecting or sustaining soil-plant and ecological relationship but to reduce the unfavorable effect of climate change. Overall, it appears that organic agricultural systems, just like pioneers in sustainable agriculture, have already proven to be capable of growing foods with high quality standards, but scientific evidence regarding the effects of organic foods on health is still lacking (Verhoog *et al.*, 2003).

Objectives of organic farming

The appropriate definition used to define the concept behind is the "Organic agriculture is a production system which avoids or largely excludes the use of synthetic compounded fertilizers, pesticides; growth regulators as well as livestock feed additives" (Shafie and Rennie, 2012). These organic foods possess the higher product quality of foods. The potential advantages of these organic foods towards the organic agriculture (Mie *et al.*, 2017) are as production of the healthy foods on the higher concentration of a beneficial secondary plant substances such as; commonly seen in the crops where grown from the organically as compare to the non-organically crops, plays an environmentally sound and eco friendly aspect. more sustained to the main stream of the agriculture, these organic foods also balanced the individual's nutritional health aspects.

Table 2. Parameters for increasing consumer attention towards organic food

S.No.	Parameters	Organic food	Conventional food
1.	Nutritional value	more	Less
2.	Risk of health issues	less	More
3.	Pollutants	less	More
4.	Pesticides	less	More
5.	Farming by synthetic chemicals	less	More
6.	Environment friendly	more	Less

Principles of organic farming –IFOAM

According to IFOAM (International Federation of Organic Agriculture Movements) “Organic agriculture is a production system that sustains the health of soils, ecosystems and people”. It depends on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. The major objectivity of organic farming resides on development of a self-sustainable farming system in harmony with nature which delivers ecologically and economically sustainable pure food with enrichment of surrounding biodiversity and its entire components. As per International Federation of Organic Agriculture Movements links the wide range of farming system like as it enhances the health of soil in terms of fertility, plants, animals, humans and overall whole planet, it restricts various forms of pollution that is main consequences of various agricultural operations which overall enhance the ecological balance approach, to decrease the use of fossil energy in the agriculture operation to a minimum extent, to validate physiological need of the livestock conditions, to give rise to nutritional and sufficient quantity of food stuffs to the consumers, it should base upon the precautionary measures and protect our health system, future generation and environment. (IFOAM 2005) Hallmann (2012).

Does organic mean pesticide free?

As we discussed above, all the advantages, one of the advantages of organic food is lower levels of the pesticides. Besides, all the popular assumption kept in the mind is organic food do use pesticides. The major difference is that they only use naturally-derived pesticides rather than the synthetic pesticides which are used in the convectional farms. Natural pesticides are thought to be less toxic in nature, however, some have been found to have health risks. That is why, the researchers quote that you will be less exposed to harmful pesticides when you step up towards the organic food.

Conclusion

Form the above studies it directed that organic food consumption has greater nutritive value towards the human health system on the basis of the compositional value of antioxidants, free from all chemicals, pesticides, ecological correlation which is help-

ful in prevention of the various kind of diseases, risk factors, fatal conditions in our human life. These food materials have more beneficial as compared to the conventional food items in terms of integrated approach management, ecosystem balancing and environmental friendliness. Organic food material having more beneficial towards the human health care system by the effect of anti oxidative property, lack of chemicals uptake in their farming, less use of the pesticides in the growth and development of the crop. They are prepared as per approach towards the ecosystem correlation, integrated approach system, natural farming with ore uses of such biotic compounds which helpful in the growth and development of crops, vegetables, fruits in perspective of qualitative aspect towards the human beneficial in health care ground. Therefore, we can easily differentiate this ground of organic food to some conventional food material in human health care parameters. Hence consumers are more attracted towards the nutritive value of organic food materials due to the taste effect, awareness towards various microbes, biotic compounds, and obstructive of various risk factors towards the diseases.

References

- Arshad, M.S., Khan, U. and Sadiq, A. 2020. Coronavirus disease (COVID-19) and immunity booster green foods: A mini review. *Food Sci Nutr.* 00 :1-6.
- Barański, M., Rempelos, L., Iversen, P.O. and Leifert, C. 2017. Effects of organic food consumption on human health; the jury is still out!. *Food & Nutrition Research.* 61(1) : 1287333.
- Barik, A.K. 2017. Organic Farming in India: Present Status, Challenges and Technological Break Through. *International Journal of Economic Plants.* 4(4) : 182-9.
- Bhattacharyya, P. and Chakraborty, G. 2005. Current Status of Organic Farming in India and other Countries. *Indian Journal of Fertilisers.* 1(9) : 111-123.
- Böhm, H., Boeing, H., Hempel, J., Raab, B. and Kroke, A. 1998. Flavonols, flavone and anthocyanins as natural antioxidants of food and their possible role in the prevention of chronic diseases. *Zeitschrift Fur Ernährungs Wissenschaft.* 37(2) : 147-163.
- Bonti-Ankomah, S. and Yiridoe, E.K. 2006. Organic and conventional food: a literature review of the economics of consumer perceptions and preferences. *Organic Agriculture Centre of Canada.* 59 : 1-40.
- Brantsæter, A.L., Ydersbond, T.A., Hoppin, J.A., Haugen, M. and Meltzer, H.M. 2017. Organic food in the diet: exposure and health implications. *Annual Review of public Health.* 38 : 295-313.

- Brantsæter, A.L., Ydersbond, T.A., Hoppin, J.A., Haugen, M. and Meltzer, H.M. 2017. Organic food in the diet: exposure and health implications. *Annual Review of Public Health*. 38 : 295-313.
- Chakrabarti, S. 2010. Factors influencing organic food purchase in India—expert survey insights. *British Food Journal*. 112 (8) : 902-915.
- D. Kancheva, V, T. and Kasaikina, O. 2013. Bio-antioxidants—a chemical base of their antioxidant activity and beneficial effect on human health. *Current Medicinal Chemistry*. 20(37) : 4784-805.
- Dangour, A.D., Allen, E., Lock, K. and Uauy, R. 2010. Nutritional composition and health benefits of organic foods—using systematic reviews to question the available evidence. *Indian Journal of Medical Research*. 1; 131(4): 478-81.
- Givens, D.I. Health benefits of organic food: effects of the environment. CABI; 2008 *Wallingford*, pp 336, ISBN 9781845934590.
- Guilabert, M. and Wood, J.A. 2012. USDA certification of food as organic: An investigation of consumer beliefs about the health benefits of organic food. *Journal of Food Products Marketing*. 18(5) : 353-368.
- Hallmann, E. 2012. The influence of organic and conventional cultivation systems on the nutritional value and content of bioactive compounds in selected tomato types. *Journal of the Science of Food and Agriculture*. 92(14) : 2840-2848.
- Hurtado-Barroso, S., Tresserra-Rimbau, A., Vallverdú-Queralt, A. and Lamuela-Raventós, R.M. 2019. Organic food and the impact on human health. *Critical Reviews in Food Science and Nutrition*. 59(4) : 704-14.
- Köpke, U. 2005. Organic Foods: Do they have a role? In: *Diet Diversification and Health Promotion 2005* (Vol. 57, pp. 62-72). Karger Publishers.
- Lairon, D. and Huber, M. Food quality and possible positive health effects of organic products. In: *Organic Farming, Prototype for Sustainable Agricultures 2014* (pp. 295-312). Springer, Dordrecht.
- Lee, W.C., Shimizu, M., Kniffin, K.M. and Wansink, B. 2013. You taste what you see: Do organic labels bias taste perceptions?. *Food Quality and Preference*. Jul 1; 29(1) : 33-9.
- Liang, R.D. 2016 . Predicting intentions to purchase organic food: the moderating effects of organic food prices. *British Food Journal*. 4(118) Issue 1, 183-199.
- Magkos, F., Arvaniti, F. and Zampelas, A. 2003. Putting the safety of organic food into perspective. *Nutrition Research Reviews*. 16(2) : 211-222.
- Mie, A., Andersen, H.R., Gunnarsson, S., Kahl, J., Kesse-Guyot, E., Rembialkowska, E., Quaglio, G. and Grandjean, P. 2017. Human health implications of organic food and organic agriculture: a comprehensive review. *Environmental Health*. 16(1) : 111.
- Paul, J. and Rana, J. 2012. Consumer behavior and purchase intention for organic food. *Journal of Consumer Marketing*. Sep 7. 29/6, 412-422.
- Ramesh, S.V. and Divya, M. 2015. A study on consumers' awareness attitude and satisfaction towards select organic food products with reference to Coimbatore. *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS)*. 2(04) : 81-84. Vol 2, No.4,
- Rembialkowska, E. 2016. Organic food: effect on nutrient composition. *Encyclopedia of Food and Health*. Academic Press (4) : 171-177.
- Rock, B., Suriyan, J., Vijay, B., Thalha, N., Elango, S. and Rajajeyakumar, M. 2017. Organic food and health: a systematic review. *Community Med. Health Educ*. 7 : 2161-711.
- Saba, A. and Messina, F. 2003. Attitudes towards organic foods and risk/benefit perception associated with pesticides. *Food Quality and Preference*. 14(8) : 637-645.
- Shafie, F.A. and Rennie, D. 2012. Consumer perceptions towards organic food. *Procedia-Social and Behavioral Sciences*. 49:360-367.
- Verhoog, H., Matze, M., Van Bueren, E.L. and Baars, T. 2003. The role of the concept of the natural (naturalness) in organic farming. *Journal of Agricultural and Environmental Ethics*. 16 (1) : 29-49.
- Williams, P.R. and Hammitt, J.K. 2001. Perceived risks of conventional and organic produce: pesticides, pathogens, and natural toxins. *Risk Analysis*. 21(2) : 319-30.
- Zanoli, R. and Naspetti, S. 2002. Consumer motivations in the purchase of organic food. *British Food Journal*. Sep 1. 104 (8) : 643-653.
-