“Studies on benefits of organic food products in human life during Covid-19”

Abstract

Organic food products have gained considerable attention in recent years due to their perceived health and environmental benefits. This comprehensive review examines the scientific evidence surrounding the advantages of consuming organic foods compared to conventionally produced counterparts. Firstly, organic farming practices emphasize the use of natural fertilizers and biological pest control methods, avoiding synthetic pesticides and genetically modified organisms (GMOs). Numerous studies have demonstrated that organic produce tends to have lower pesticide residues, reducing the potential health risks associated with pesticide exposure. Moreover, organic farming promotes soil health and biodiversity by minimizing the use of synthetic chemicals and fostering sustainable agricultural practices. Healthy soils are essential for nutrient-rich crops and contribute to long-term environmental sustainability. Additionally, organic agriculture typically utilizes crop rotation and intercropping techniques, which enhance soil fertility and resilience.Furthermore, organic livestock production adheres to stringent animal welfare standards, including access to outdoor grazing and the prohibition of routine antibiotic use and growth hormones. As a result, organic meat, dairy, and poultry products often contain higher levels of beneficial nutrients such as omega-3 fatty acids and antioxidants.In terms of nutritional quality, several meta-analyses have suggested that organic fruits and vegetables may have slightly higher levels of certain vitamins, minerals, and antioxidants compared to conventionally grown counterparts. While the differences may be modest, the cumulative effects of consuming organic foods over time could contribute to improved overall health outcomes.This article concludes that beyond ~~Beyond~~ individual health benefits, supporting organic agriculture also has positive implications for environmental conservation and sustainable food systems. By minimizing chemical inputs and promoting biodiversity, organic farming helps mitigate soil erosion, water pollution, and greenhouse gas emissions associated with conventional agriculture.

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Key word: Biodiversity,environmental, organic, benefit, pollution, food.

Introduction

M.S. Swaminathan, renowned as the father of India’s Green Revolution, once emphasized that the wars of the future would be won by those with food, not by those with guns. The Covid-19 pandemic has underscored the power of this statement, revealing the crucial role of food security in times of crisis. From a strictly nutritional standpoint, scientists have found limited advantages in organic foods. A comprehensive review in 2012 of 240 studies concluded that organic foods did not significantly surpass their conventionally grown counterparts in terms of nutrition.However, despite the ongoing debate among nutrition experts, recent studies have indicated lower levels of pesticide residues and higher levels of antioxidants in organic produce. While the precise health benefits of antioxidants remain uncertain, organic farming practices promote environmental sustainability and reduce chemical exposure.The Covid-19 pandemic has led to significant shifts in consumer behavior, including increased interest in organic food products. India, with 30% of the world's certified organic producers, has witnessed a surge in demand for organic products. Organic farming

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techniques such as crop rotation and the use of green manure not only produce safer and healthier yields but also support local economies.Moreover, the pandemic has highlighted the importance of choosing healthier food options. Purchasing organic produce ensures freshness and purity, directly supporting local farmers and preserving the environment. Organic farming practices result in reduced chemical exposure, less pollution, and lower greenhouse gas emissions.Furthermore, organic foods tend to be richer in nutrients and antioxidants compared to non-organic counterparts. For instance, organic milk and certain vegetables have been found to contain significantly higher levels of antioxidants. Non-governmental organizations (NGOs) in India play a crucial role in promoting organic farming and providing support to farming communities through training, extension services, and marketing assistance. The Covid-19 pandemic has emphasized the importance of organic food products in promoting health, supporting local economies, and preserving the environment. While the nutritional debate continues, the broader benefits of organic farming practices underscore its significance in ensuring food security and sustainability.

Coronavirus boost –Impact on Consumer demand of organic food products:

Covid-19 pandemic has spurred widespread changes in behavior, prompting an inundation of advice on surviving during these times. Shortages of resources often lead many to lack The essential nutrition, prompting interest in organic supplements to bolster immune systems against Covid-19. Here are some commonly recommended items:

1. Gooseberry (करोंदा) or Indian gooseberry, known as Amalaki, is rich in vitamin C, crucial for immunity. It's also an adaptogen, aiding the body's response to stress, and boasts antioxidant properties, helpful for combating seasonal coughs, colds, and influenza.
2. Guduchi (गिलोय), also called Giloy, is revered in Ayurveda for its immune-boosting properties, particularly in the stem, which supports the body's response to infections. It's also valued for cognitive health, improving memory and learning.
3. Tulsi (तुलसी) has been used for millennia to combat physical, emotional, and environmental stress. Modern research identifies it as an adaptogenic herb, aiding the body's stress response and promoting overall health.
4. Turmeric (हल्दी), containing the bioactive compound curcumin, enhances immune function with its antioxidant and antimicrobial properties. Commonly used in Ayurvedic medicine, it's available in various forms such as powder, teas, or supplements.
5. Kalmegh (कालमेघ), also known as green chiretta, possesses antioxidant and anti-inflammatory properties beneficial for treating liver issues. It's valued for boosting immunity and managing symptoms of common colds, sinusitis, and allergies.
6. Ashwagandha (अश्वगंधा), an ancient medicinal herb, is revered for its rejuvenating effects, earning it the moniker Indian winter cherry or Indian ginseng. It's an adaptogen with anti-stress properties, aiding the body's response to physical, emotional, and environmental stressors.
7. Black pepper (कालीमिर्च) has been studied for its health benefits, with its active component, piperine, showing antioxidant and immune-supporting properties. Piperine also aids in stimulating digestive enzymes and promoting healthy pancreas function.

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Benefits of organic food products during Covid 19

- The coronavirus pandemic helped a lot of people to realize the importance of choosing healthier options to eat.
- Coronavirus pandemic organic produce is purchased fresh and pure food from farmers. Supermarket and other shopes we do not know how long the produce has been stored. Organic place purchases fruit and vegetables fresh from the framers markets.
- Coronavirus pandemic every people go with goodness and quality of the products. Organic food products follow the seasonal cycle and are only available when they grow naturally. People expect any and every organic food products all year round which leads to fruit and vegetables being grown outside of their season.
- Organic food products it is healthier for you and more nutritious. Organic produce it is fresher, tastier, free from chemicals and seasonal.
- Organic food products supports local farmers directly organic produce come from local farmers. Are you buying organic food products are you directly supporting Indian farmers and increases his economical status.
- Organic food products preserve the environment organic food reduce your chemical exposure as it contains fewer pesticides. Organic farming is better for the environment because it's practices involve less pollution soil erosion and energy. It is reduced the greenhouse gas emissions per hectare by 20% and some varieties of food that have increased. Root vegetables like potatoes, carrots and onions and meat products like beef and sheep.
- Levels of antioxidants in milk from organic cattle are between 50% and 80% higher than normal milk. Organic wheat, tomatoes, potatoes, cabbage and onions have between 20% and 40% more nutrients than non organic foods.
- The NGO sector in India is very strong and has established close linkage to large number of marginal farmers. Many NGO or engaged promotion of organic farming and provide training extension services information and marketing services to farming communities.

Major organic products produced in India ~~by organic farming~~:

Agricultural and Processed Food Products Export Development Authority (APEDA):

~~**Commodities :**~~**Commodities:** Tea, coffee, rice, wheat
Spices : Cardamom, black pepper, white pepper, ginger, turmeric, vanilla, tamarind, clove, cinnamon, nutmeg, mace, chilly
Fruits : Mango, banana, pineapple, passion fruit, sugarcane, orange, cashew nuts, walnut
Pulses : Red gram, black gram
Vegetables : Okra, brinjal, garlic, onion, tomato, potato
Oilseeds : Mustard, sesame, castor, sunflower
Others : Cotton, herbal extracts

(Source: APEDA)

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Methodology~~**Materials and Methods**~~

The study employed a descriptive survey method, beginning with a comprehensive formulation of specific objectives. Techniques, tools, and statistical analyses were determined accordingly. A review of relevant literature contextualized the findings. Uttar Pradesh was chosen as the study's locale, with Kanpur city selected purposively due to the researcher's familiarity. Four zones within Kanpur district were randomly chosen, each contributing 30 respondents for a total of 120. Before finalizing the project, a pilot survey was conducted to understand the study area and identify potential issues. Instruments were pre-tested on 120 respondents to refine wording and composition. Data collection involved structured interviews based on socio-economic status and awareness of agricultural challenges. Data was collected from all 120 respondents between December 15, 2020, and January 15, 2021.Statistical analyses included percentage comparisons, arithmetic mean, standard deviation, and weighted mean. Percentage calculations were used for single comparisons, while mean calculations were based on the total scores divided by the number of respondents. Standard deviation measured the distribution's dispersion from the mean, and weighted mean factored in variable importance.

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(iv) Pre-testing of instruments:

Before collecting the necessary data from the finally selected sample of 120 respondents were identified other than those including in the final selection of respondents. These 120 respondents were interviewed with the help of schedules and questionnaires developed for collecting the data. This helped the investigator in making necessary changes in the instruments to be finally used their wording and composition.

iii) Pilot study:

Before~~Prior to finally~~deciding ~~dividing~~ the ~~to~~ title of the project a pilot survey of the area was conducted. This gave an idea about the place of the study and nature of the samples that could be drawn and types of aspects and problems, which could be explored out.

(iv) Pre-testing of instruments:

Before collecting the necessary data from the finally selected sample of 120 respondents were identified other than those including in the final selection of respondents. These 120 respondents were interviewed with the help of schedules and questionnaires developed for collecting the data. This helped the investigator in making necessary changes in the instruments to be finally used their wording and composition.

Data collection procedure and statistical technique used

Preparation of interview schedule was prepared for taking a view of the respondents and asking questions to them. This schedule was prepared with a consultation of the guide so that the maximum relevant answers could be obtained from the respondents. This interview schedule comprised four sections: socio-economic status of the respondents, awareness and perception of respondents about knowledge and impact of social faced by farmers in agriculture.

Data collection the necessary evidences were collected in line with the objectives of the study. All the 120 respondents were inclusively approached by the researchers. By personal contact, all the respondents were interviewed with the help of the structured schedule developed for the study. Period of data collection was initiated from 15 Dec. 2020 to 15 Jan, 2021.

Statistical analysis

The following statistical techniques have been applied in the analysis of data.

1. Percentage:

Single comparisons were made on the basis of the percentage, for drawing percentages, the frequency of a particular cell was multiplied by 100 and divided by total number of respondents in that particular category to which they belonged.

$$\text{Percentage} = \frac{\text{The sum of all the respondents}}{\text{Total number of all the respondents}} \times 100$$

2. Arithmetic mean ($\bar{X}$):

The average ($\bar{X}$) was calculated by adding the total scores obtained by

the respondents and divided it by the total number of respondents and divided it by the total number of respondents using the following formula:

$$\bar{X} = \frac{\Sigma x}{N}$$

Where,

$\bar{X}$ = Average or mean
Σx = Total number of scores obtained by respondents
N = Total number of respondents

3. Standard deviation (σ)

S.D. is the square root of mean of the squares of all deviations, the directions being measured from the arithmetic mean of the distribution. It is commonly developed by symbol sigma (Σ) for summation.

$$\text{S. D.} = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$$

Where,

S.D. = Standard deviation

$(x - \bar{x})^2$ = Variables from mean

n = Total number of items

4. Weighted mean

It is average which is calculated on the basis and coding. If X_1, X_2, X_3, ……. X_n, are the codes and $W_1 + W_2 + W_3$ …… W_n are their respective weights, then :

$$\text{Weighted mean} = \frac{W_1X_1 + W_2X_2 + W_3X_3 + \ldots W_nX_n}{W_1 + W_2 + W_3 \ldots\ldots W_n}$$

$$= \sum_{i=1}^{n} \frac{W_1 X}{W_1}$$

5. Rank

Ranks were calculated from the value obtained from the weighted mean scores. So, ranks were given on the basis of the highest to the lowest frequency/mean score

Results

The table indicates the perceived health benefits of organic food products during the Covid-19 pandemic. Among respondents, 80.0% agreed that organic food products contribute to a stronger immune system and reduce allergies and obesity, with a mean score of 1.8 and standard deviation of 1.3, ranking first. Following closely, 75.0% of respondents agreed that organic meat and milk can be richer in certain nutrients like omega-3 fatty acids, with a mean score of 1.75 and standard deviation of 1.2, ranking second in the study. Additionally, 65.8% of respondents agreed that organic food can prevent deadly diseases like cancer, with a mean score of 1.66 and standard deviation of 1.1, ranking third. Meanwhile, 62.5% of respondents agreed that organic food can contribute to overall better health, with a mean score of 1.63 and standard deviation of 1.1, ranking fourth. Furthermore, 57.5% of respondents agreed that organic food products have no side effects when consumed, with a mean score of 1.58 and standard deviation of 1.1, ranking fifth. Lastly, 47.5% of respondents agreed that organic food products are free from hazardous chemical contamination, with a mean score of 1.48 and standard deviation of 1.0, ranking sixth in the research study on organic food products during the Covid-19 pandemic.

Table:1. Benefits of human health by organic food ~~products during~~products during Covid-19

S. No.	Benefits	Yes	No	Mean Score	SD	Rank
1.	Organic contribute better health	62.5	37.5	1.63	1.1	IV
2.	Organic food richer in nutrients	75.0	25.0	1.75	1.2	II
3.	Prevent us deadly disease	65.8	34.2	1.66	1.1	III
4.	Free from hazard	47.5	52.5	1.48	1.0	VI
5.	Not any side effects	57.5	42.5	1.58	1.1	V
6.	Improve immune system	80.0	20.0	1.80	1.3	I

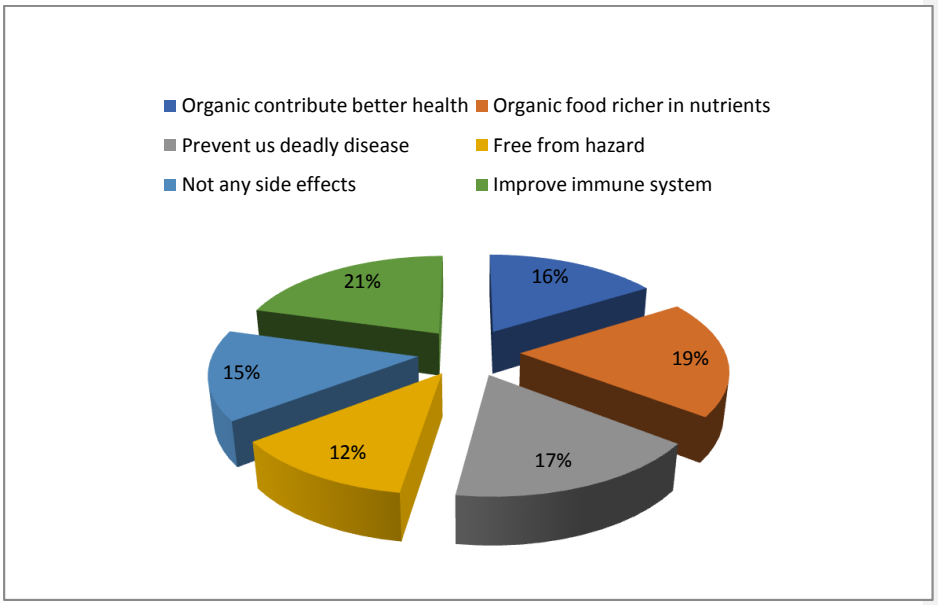

Fig No. 1 Distribution of respondents according to the benefit of human health

The table illustrates the perceived environmental health benefits of organic food products during the Covid-19 pandemic. Among respondents, 75.8% agreed that the production of organic products is entirely environmentally friendly, with a mean score of 1.76 and standard deviation of 1.2, ranking first. Following closely, 75.0% of respondents agreed that organic food reduces pollution and protects water and soil, with a mean score of 1.75 and standard deviation of 1.2, ranking second in the research study. Additionally, 65.0% of respondents agreed that organic food contributes to the preservation of ecosystems, with a mean score of 1.65 and standard deviation of 1.1, ranking third. Meanwhile, 57.5% of respondents agreed that organic food helps preserve agricultural diversity, with a mean score of 1.58 and standard deviation of 1.1, ranking fourth in the study of organic food products during the Covid-19 pandemic.

Table: 2. Benefits of environmental health by organic food products during Covid 19

S. No.	Benefits	Yes	No	Mean Score	SD	Rank
1.	Protect environment	75.0	25.0	1.75	1.2	II
2.	Preserve agriculture diversity	57.5	42.5	1.58	1.1	IV
3.	Reserve ecosystem	65.0	35.0	1.65	1.1	III
4.	Environment friendly	75.8	24.2	1.76	1.2	I

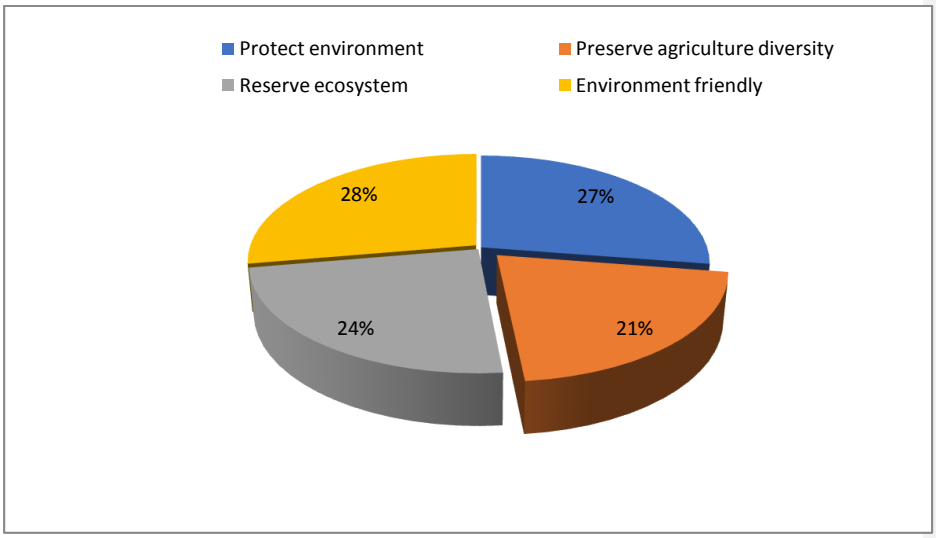

Fig No. 2. Distribution of respondents according to the benefit of environmental health

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