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Impact of COVID-19 on mushroom marketing in India

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Abstract

Mushroom is a micro food fungus, which is seen the naked eye, whose body is rounded top or, umbrella - shaped, it is eaten as a vegetable and other products. It is full of high nutritional and medicinal properties, it contain high protein, fiber, vitamin D, antioxidants and low carbohydrate, fats, minerals, and cholesterol free, it called the power of house of nutrition. Mushrooms are only vegetarian source of vitamin D. COVID is serious infections respiratory disease, which has devastated the human life of the whole and brought the economy down. Corona pandemic is the biggest challenging for the all over world. Due to the lockdown in India, people of all classes had to face financial, health problems. The global pandemic corona affected India's social, economic, political, educational, cultural, structure, physical and mental health as well as every outlook of life. In the initial days of the lockdown, there was a sharp drop in mushrooms and mushrooms products, such as like pickle, jam, juice, bread, noodles, biscuits, consumption ranging from 50 to 80%. Due to COVID, the mushroom consumption, market size, major vendors, growth factors, sales size, market share, volume cost structure were impacted. But due to the health benefits of mushrooms being full of medicinal properties, there was a positive effect on the mushroom market due to the strong share of the retailer and the increase in consumption with the cooperation of the consumer. Corona virus directly affects the immune system, mushroom have antiviral, antifungal, antibacterial, properties, which fight the corona virus and protects, the body from various diseases by increasing immunity. During COVID period, due to the consuming of mushrooms in the diet by conscious consumer demand increased in the market and some farmers tried to improves their income and economy health of the country by adopting mushroom cultivation. The worldwide lockdown affected the mushroom distribution channel structure. Due to the income of the farmers was affected but there was a positive effect on the mushroom market. In agricultural countries like India mushroom cultivation and marketing self- employment, business, and economic development can be a miracle for a healthy life.

Keywords: Mushroom market, self-employment, medicinal properties, e-commerce, mushroom products, health benefits, global pandemic, consumer cooperation, anti-virus, online channel, agribusiness

Introduction

Mushrooms are micro edible fungus used as vegetable and food products which grown on straw. There are many varieties in which different types of colours, test, texture, shape, size, aroma, and flavors are found. Mushroom is a healthy food for humans which provides various types of nutrition.

It also contains low calories, carbohydrate, fats, and high protein, fibers and vitamins, minerals, lipids. It is cholesterol free and antioxidants, vitamin D is found in high amounts. Mushrooms provide complete nutritional health therapeutic food for vegetarians. By consuming 10 gram of mushroom, half of the vitamin D is supplied in the body it is the only vegetarian source of vitamin D. Mushroom are a storehouse of high nutrition and medicinal properties.

Including mushrooms in the diet protects against various diseases. It has medicinal properties in form of antiviral, antifungal, antibacterial, antibiotic properties, immunomodulators, anti-HIV, antihypertensive, antilipidaemic, antitumor, anti-allergy. Mushrooms have antiviral, stamina-boosting, immunity-boosting properties as well as anti-cancer properties.

COVID is a serious fatal infectious respiratory disease that has devastated the lives of mankind all over the world. It directly affects various part of the human body. The coronavirus enters the body and causes problems in the functioning of the body by affecting the lungs, kidneys, brain, heart, liver, digestive system, nervous system. Due to being a respiratory disease, due to breathing problems, there is a lack of oxygen in the body and it leads to death by spoiling the

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physical mental state of the human being.

Due to being rich in medicinal properties, mushrooms are consumed in medical food. By consuming mushroom in the diet, the organs of our body function smoothly, due to which digestive system, heart, brain, respiratory system, nervous system, kidney, skin remain healthy. The COVID virus infected the human body and causes disease by directly attacking the immune system. Mushrooms have antivirus, antifungal, antibacterial properties that strengthen the immunity in the human body by fighting the virus. Consuming of mushroom in diet can save our body from getting COVID disease.

The global pandemic had a widespread fatal impact on all age groups gender on the human life of the world. In the global pandemic, the whole world was trying to deal with the economic crisis. In India, farmer, unemployed showed interest in mushroom cultivation and tried to improved their income and economic condition of the country by adopting this business. The farmer realized that mushroom is a cash crop. It requires less input and gives better returns instant benefits. It is also a good source of income.

Mushroom cultivation has become an alternative to small-scale alternative farming in the form of agribusiness, self-employment during COVID. The growth of global mushroom market was adversely affected in the initial days of lockdown. The imposition of the lockdown in India affected the fresh mushroom distribution channel structure and retailer due to the inconvenience of traffic. Migration of laborers affected the mushroom market production consumption. Mushroom farm owners, wholesalers and retailers suffered huge economic losses and also affected the income of small farmers. Keeping in view the social distance, food security, and online channel was selected for supply of mushroom and mushroom product demand.

During the global pandemic online shopping and e-commerce provided to be a boon for business, enterprises and consumers, as their mental state changed, which enabled the growth of the mushroom market. The global mushroom market is also supported in the supply chain partnership with online delivery platforms. Social media along with e-commerce also provided a great platform which helped the consumer to place and pick-up the orders as per their requirement. And the orders were made available at their appropriate locations. E-Commerce platform was also started by mushroom companies which facilitated the supply chain. The consumer benefited and the demand for mushrooms increased, thereby benefiting the market.

The consumer inclination towards natural cosmetic products is increasing rapidly, due to the increasing consumer demand the cosmetic business is growing rapidly. Antioxidants, polyphenolics, terpenoids, selenium, polysaccharides and vitamins present in mushrooms are organic compounds. All these compounds are being used in marking natural cosmetic products having cartilaginous properties, excellent antioxidant, and anti-aging anti-wrinkle, skin whitening and moisturizing properties. Mushrooms contain natural bioactive compounds, which are being used in the cosmetics industry to make products for skin and hair. Ceramides, lentinan schizophyllon, omega 3, 6 and 9 fatty acid carotenoid resvetrol present in mushrooms are used to make products for wrinkle spots. Mushrooms have antioxidant properties, cosmeceuticals, nutricosmetics properties.

At present time, mushrooms and mushrooms extracts are being used in the development of cosmetic industry and business. If cosmetic products are made in large scale, then

the demand of mushroom will increase in the market and farmers will also benefits. The use of mushroom in cosmetic will increase the demand globally which will benefit the market. Mushrooms are used in various countries in the food and medical industry, pharmaceutical products.

At the time of COVID, due to the change in the food and lifestyle of the people, it also gave birth to various types of diseases. Due to COVID global pandemic had hung impact on all urban and rural areas on mental, physical, economic, educational, political, cultural structure and health and fitness. Due to these problems, people gradually paid attention to food and drinks to keep the body healthy and become aware. Conscious consumers of health benefits started searching for food items rich in medicinal properties that provide complete nutrition so that the body remains healthy and can be protected from COVID. This purpose has led to the popularity of vegetarian diets for health benefits by some consumers. In search of complete nutrition healthy food rich in medicinal properties, some people have chosen mushrooms and included them in their diet. The risk of obesity, diabetes, cholesterol and other disease is reduced in those who eat vegetable food. Due to which the demand for mushrooms in the food and supplements industries and in the market during the time of COVID increased and mushroom market developed. The consumption of mushrooms at the time of COVID gave economic momentum to the mushroom market. The COVID pandemic has had a huge impact on human life globally and has created various kinds of problems. COVID-19 has devastated every region of the whole world and ruined the economy.

81 million jobs were wiped out in 2020 due to the COVID pandemic. The International Labor Organization estimated a 10% decline in labor income as reported by economist. In order to reduce the huge loss of employment during the lockdown in India, the farmer focused on mushroom cultivation and generated self-employment and a source of income.

The Director General of Indian Council of Agricultural Research (ICAR) told about the benefits of mushroom cultivation, the employment generation potential of mushrooms. According to him, the cultivation of mushroom crops is done in indoor controlled environment, which reduces the effect of erratic climate. Mushroom business ensures up to 100% profits. There is a need to make consumers and farmers aware to prevent COVID and other diseases and to provide nutrition to all and to generation self-employment and increase consumption and production.

At the time of COVID, farmers in India provided healthy food, food security, complete nutrition, medicinal foods, self-employment opportunity, industry development, source of income through mushroom cultivation. By cultivating mushrooms, the farmers gave impetus to the mushroom market by expanding the food channel by supplying raw materials in the market during corona.

To increase mushroom production and consumption, there is a need to promote mushroom food product through small documentaries, social media, newspaper, magazine, doctors and various other channels. The government also needs to pay attention to mushroom cultivation and consumption. By spreading the promotion of mushroom food products like pickle, jam, mushroom juice or powder, laddu, papad, biscuits, soup, namkeen, noodles, candy, bread, the consumer will get awareness of mushroom food products. This will further boost the market demand for mushroom cultivation and consumption.

The size of the global mushroom market was 14.35 million tonnes in 2020. The size of the global mushroom market has grown to 15.25 million tonnes in 2021. During the corona crisis, there was a shocking and amazing effect on the global mushroom market. There was also a positive impact on India's mushroom production and mushroom market. According to the data of ICAR (Indian Council of Agricultural Research), there was an increase in the production 42 thousand tonnes of mushroom in India during the corona period. Last year the data of mushroom production was 2 lakh tonnes. But during the corona period, this data become 2 lakh 42 thousand tonnes. The increased tremendously, due to which there was an excellent trend in mushroom cultivation and business.

Due to the lockdown, restaurants, cafes, hotels, market, public mobility restrictions, due to the people staying at home, there was a sharp decrease in their sales in the service segment with a decrease of 50 to 80% of the mushroom and mushroom product manufacturers. Demand increased gradually due to intensification or, speedy of service through online ordering and home delivery, the situation in the mushroom market improved. Due to the COVID outbreak and lockdown, every segment of the market had a positive and negative impact. But there was a positive impact on the mushroom marketing in India.

Mushrooms have been cultivated in the world for thousands of years. Its history in India is very old for three decades. Commercial cultivation of mushroom in India was started in 1960 under the scheme "Development of Mushroom Farming in Himachal Pradesh". Mushroom cultivation started with collaboration of German agronomist with Indian farmer in Himachal Pradesh's city of solan. There has been a steady increase in the production of mushrooms in India for 10-12 years.

Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Bihar are the major mushroom cultivation states in the country on a commercial scale. Mushroom production also had a positive impact on the state of Bihar. In 2021 to 2022 total mushroom production in Bihar was 28000 metric tonnes, which is 10.82% of the total production of the country. Bihar got first position in the country in mushroom production at the time of COVID. State Agriculture Minister Amarendra Pratap Singh gave credit to the farmer of the state and expressed happiness over this achievement. Maharashtra is the second position after Bihar with 9.89% share the third position is Odisha with 9.6% share.

Regarding mushroom cultivation, the agricultural scientist of Rajaendra Parshad Agricultural University said that commercial cultivation of mushroom was started in Bihar in 1990. He told that different types of food products of mushroom are made in this university. He said that mushroom products like gulab jamun, Laddu, Papad, Sauce, Soup, Sav, Supplementary Power, Noodles, Jam, Bread, Chips, Biscuits, Candy, Cookies, Ketchup, Cake, Gujiya, Sweets other food items are being made. In the corona crisis of 2020, there was trouble in sending and selling mushroom products for 10 days, and then there was no problem in the second third wave. There is a demand for mushroom product of Bihar in northeastern state of the state of the country, Uttar Pradesh, Jharkhand.

People unemployed due to corona in Bihar and laborers from

other states showed tremendous enthusiasm towards mushroom cultivation and achieved records. The consumption of mushroom per capita in India is about 90 grams, which is relatively less as compared to other countries. America's per capita consumption is 1.49 kg while China's is 1.16 kg, India is an agricultural country. Here different types of crops are grown in different seasons, in which mushroom is also a type of cash crops. Mushroom production and consumption in India increased during the COVID crisis. Mushrooms are one of the most important agribusinesses in the world.

Mushroom marketing in India

- Door to door
- Farmer to big Stores, hotel
- Farmer to local Market
- Distributer to farmer
- Online Order
- Home Delivery
- Products and Medicines Industry

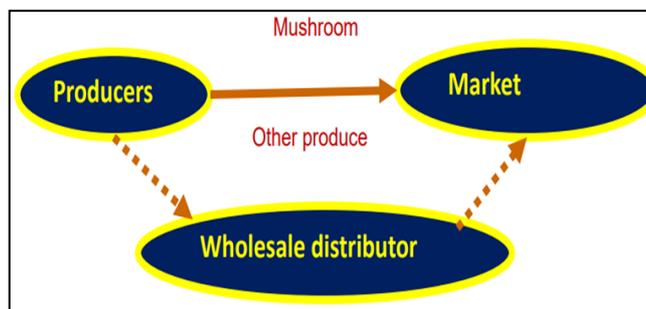
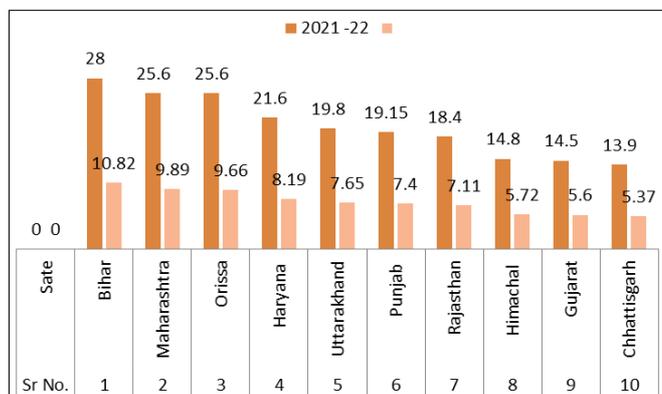


Table 1: Indian production mushrooms (COVID period).

Sr. No.	Sate	2021-22 Production	Share %
1.	Bihar	28.00	10.82
2.	Maharashtra	25.60	9.89
3.	Orissa	25.60	9.66
4.	Haryana	21.60	8.19
5.	Uttarakhand	19.80	7.65
6.	Punjab	19.15	7.40
7.	Rajasthan	18.40	7.11
8.	Himachal	14.80	5.72
9.	Gujarat	14.50	5.60
10.	Chhattisgarh	13.90	5.37
11.	Tamil Nadu	12.66	4.89
12.	Uttar Pradesh	12.40	4.79
13.	West Bengal	9.50	3.67
14.	Jharkhand	5.02	1.94
15.	Jammu and Kashmir	2.65	1.02
16.	Nagaland	1.64	0.63
17.	Karnataka	1.50	0.58
18.	Madhya Pradesh	1.50	0.58
19.	Assam	1.40	0.54
20.	Tripura	0.12	0.05
21.	Arunachal Pradesh	0.08	0.03
22.	Mizoram	0.07	0.03
23.	Andhra Pradesh	0.05	0.02
24.	Karalla	0.04	0.02
25.	Manipur	0.03	0.01
26.	Meghalaya	0.03	0.01
27.	Sikkim	0.02	0.01
28.	Other	9.75	3.77

Source: National Horticultural Board (NHB) Year 2021-22. Production (In Tonnes), 1 Tonnes = 1000 kg



Source: Indian horticulture Board (NHB) 2021-22
Production (In Tonnes), 1 Tonnes = 1000 kg

Fig 1: Top 10 states production of mushroom.

Aim of objective

1. Including mushrooms in the diet for the prevention of malnutrition so that various diseases and COVID can be prevented.
2. To make aware about the medicinal properties and nutrients present in mushrooms.
3. To solve the economical and health problems due to COVID through mushroom cultivation and consumption.
4. To generate self - employment through mushroom cultivation and consumption and to provide employment to the unemployed.
5. To create awareness regarding mushroom and their products should be include in the diet so that better health can be achieved.
6. To make people aware about mushroom cultivation and consumption so that mushroom market can be developed.
7. Mushroom agribusiness can improve the health and income of socio-economically backward communities.

Conclusion

Due to the global pandemic COVID, different types of problems like economic, employment, health, mental health, lack of income have arisen. In solving this problem, the production consumption of mushrooms and the size of the mushroom market provided to be a boon to some extent. Mushroom production and mushroom market generated a good source of income by providing self - employment to unemployment youth, women and farmer of the country. Including mushroom in the diet provides good nutrition as well as health benefits and protection from various diseases. And can prove to be economic condition of the country. In the midst of COVID, the strength of the retailer and the online demand home delivery used of the conscious consumer in search of medicinal high nutritional food increased the consumption of mushroom. Overall, we can say that due to the high complete nutritional and medicinal properties of mushrooms, the demand for mushrooms, in the market increased, which increased production and consumption. There was a positive effect on the mushroom market during the COVID period, which led to the development of the market.

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