International Journal of Commerce and Management Research
ISSN: 2455-1627, Impact Factor: RJIF 5.22
www.managejournal.com
Volume 3; Issue 3; March 2017; Page No. 23-26

Current scenario of mushroom industry in India

[*1] Karthick K, [2] Dr. Hamsalakshmi

[1] Assistant Professor, Department of Commerce, Providence College for Women, Coonoor, Tamil Nadu, India
[2] Assistant Professor, Department of Commerce, LRG College for Women, Tirupur, Tamil Nadu, India

Abstract
Mushroom industry globally has expanded both horizontally and vertically, meaning that the expansion has been in production and addition of newer types of mushrooms for commercial cultivation, both edible and non-edible mushrooms. India, being a developing country is fortunate to have a varied agro-climate, abundance of agro wastes, relatively low-cost labour and a rich fungal biodiversity. These factors combined make India a potential major producer of temperate, tropical and subtropical mushroom species. Per capita consumption of mushrooms in India is less than 50 gas against over a kg in various countries. Moreover, its enormous population could support the large-scale consumption of nutritious mushrooms by a significant health-conscious urban population as well as the rural masses struggling with hunger and malnutrition, particularly vegetarians who rely heavily on a cereal-based diet. In the coming years, there is going to be good demand for processed and fast foods. Mushrooms may be canned to meet the demand in the off-season and in the non-producing areas. There is no denying the fact that production of mushrooms, especially of the white button mushroom, in India has gone up in the last few years, but it has also exacerbated its marketing problems. Therefore efforts should be made to increase the production and solve the marketing problems. The marketing of fresh mushrooms would determine the future of mushroom industry in India. This article is an attempt to analyse the current scenario of the mushroom industry in India.

Keywords: mushroom industry, agro-climate, agro wastes

Introduction
Mushrooms have been recognized by Food and Agriculture Organization (FAO) as food item contributing to the protein nutrient to the diet of developing countries like India, where there is heavy dependence on cereal diets. The significant feature of mushroom is that this nutritious and tasteful food is cultivated entirely from waste products and converts a wide spectrum of agricultural and industrial waste into substrate on which the growth of mushroom is supported. After harvesting the mushroom, the solid residual left is organic compost with natural nutrients to further enrich the soil. In addition to converting the waste into valuable product, it enhances the income and provides additional gainful employment to the producers. Keeping in view the increasing demand of mushroom due to globalisation and opening of the economy. Thus, this article is an attempt to analyse the current scenario of the mushroom industry.

Global Scenario
Mushroom industry globally has expanded both horizontally and vertically, meaning that the expansion has been in production and addition of newer types of mushrooms for commercial cultivation, both edible and non-edible mushrooms. Today China is leading in global mushroom production both in cultivation of edible and non-edible types. China produces approximately 70 percent of world mushroom production and mushroom is their sixth economically important crop as far as country's revenue generation is concerned. The second highest mushroom producing country is USA, followed by some European countries. European production is confined to France, Germany, Holland, Italy and other countries in western-Europe. There is a matching contribution in mushroom production in Eastern European countries like Hungary and Poland where mushroom production has received a boost as can be seen from the production figures available and mushroom activity in these countries.

Global Market
Fresh and processed button mushrooms and fresh specialty mushrooms are produced and consumed in many countries. Fresh mushrooms are perishable, so their global movement often has been restricted to transactions mainly between neighbouring countries. The movement of fresh mushrooms on a global scale increased lately but canned mushrooms are shelf stable, with a shelf life of two to three years and thus, are the major mushroom product traded globally. Global mushroom production amounted to 3.4 million tons in 2007, trending steadily upward from 2003. China remained the leading global producer of mushrooms for all uses and has been for the past five years. Since 2005-06, the Chinese national government increasingly encouraged to shift their agricultural production out of traditional crops to value-added crops like mushrooms for processing. The United States and the EU countries were the second and third largest global producers, respectively, in 2007, other important global producers included Canada, Japan, India, Australia, and Indonesia. Countries showing noticeable increases in production included China, Spain, Poland, and Ireland. The production in most of the remaining countries decreased slightly or remained almost the same.

Global Consumption
In 2007, global consumption amounted to 3.3 million tons and China, the EU countries and the United States were the leading

global consumers of mushrooms. Other major consumers included Canada, Japan, Russia, Australia, and India. Virtually all consumption in China, the EU, and India was supplied from domestic production. On the other hand, virtually all Russian consumption was supplied by imports. Finally, consumption in the United States, Canada, Japan, and Australia met mostly by domestic production but also by significant quantity of imports.

Global Trade

Global exports of canned mushrooms amounted to 458,137 tons in 2008, up by 25 per cent from 365,967 tons in 2004, with China accounting for 87 per cent of total export volume in 2008 and for nearly all the rise in global exports during the report period. The increase in exports from China through 2008 resulted from a fall in freight rates from China to most global markets in 2007–08. Other major global exporters in 2008 included Indonesia and India, although export levels from Indonesia remained almost the same throughout the 2004–08 period and exports from India during the same period were down because of intense competition from Chinese exports. Global exports of fresh mushrooms averaged around 43,730 tons during 2004–07 before falling to 34802 tons in 2008. Canada and the United States were the largest global exporters of fresh mushrooms in 2008, together accounting for nearly 80 per cent of the total, with most exports from both countries shipped to each other. Other major exporters in 2008 were Malaysia and Mexico. Most of the fall in exports of fresh mushrooms from 2007 to 2008 was accounted for by a drop in exports from China, where a greater share of fresh mushroom production was processed and mushroom growers in China switched into production of other crops. Exports from traditional supplier Canada also fell following a decision by Canadian shippers to concentrate in their home market as a result of an unfavorable change in the US-Canada exchange rate. Global imports of canned mushrooms amounted to 292,267 tons in 2008, up by 12 per cent from 260,944 tons in 2004, with the United States and Russia accounting for the largest individual shares of total import volume in 2008. Global imports of fresh mushrooms amounted to 90,879 tons in 2008, up by 42 per cent from 63,618 tons in 2004. Russia and the United States together were the most important global import markets in 2008. Canada, Norway, Malaysia, and Ukraine were other major markets. The rise in imports from 2004 to 2008 was due to a rise in Russian imports, with Russia becoming the primary market for Chinese mushrooms in 2007 and 2008.

Present status in India

Though mushroom cultivation, both in east and west started many centuries ago, yet its cultivation in India is of recent origin. Paddy straw mushroom cultivation was first attempted in India at Coimbatore in 1943 by Thomas and his associates. However, first systematic attempt in cultivating button mushroom was made in 1961, when a scheme entitles "Development of Mushroom Cultivation in Himachal Pradesh" was started at Solan by H.P. Government in collaboration with ICAR, New Delhi. In the late sixties, few progressive growers in H.P. and Jammu and Kashmir started growing button mushroom on commercial scale vizTeg's Mushroom (Chail, H.P.), Saigal Mushroom farm (Kasauli, H.P.), Harco's (Srinagar, Kashmir) and Col. Kak's mushroom Farm (Srinagar, Kashmir) (Dhar, 1997) [2]. In early seventies, mushroom cultivation started spreading to other hilly regions of Uttar Pradesh and Tamil Nadu. By late seventies and early eighties, mushroom cultivation was adopted by farmers in Haryana, Punjab and Uttar Pradesh in areas around Delhi, as a seasonal crop in a big way. Delhi and Bombay together formed the big market, for fresh mushroom and could utilize more than 10 to 12 tons of fresh mushrooms per day. In the significant development in mushroom cultivation one of the biggest unit in the country is located at Madras, a coastal city in Southern Tropics. Now mushroom cultivation is also picking up in the states of Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh as a result of adoption of technology of mushroom production under controlled conditions.

The present status of mushroom production in various regions of the country is very result oriented with encouraging figures. Many export-oriented units are being put up by corporate houses/industrialists, throughout the country with use of advanced technology and machinery for mushroom growing. In the last 10 to 12 years, the mushroom production in India has increased many folds and present mushroom production stands at 50,000 tons (Verma, 2002) [6].

Types of mushroom cultivated

Only three types, the button mushroom, oyster mushroom and paddy straw mushroom are generally grown in India. More emphasis is given to the cultivation of button mushroom. For the last 12-15 years there has been almost exponential growth both in production and quality of mushrooms in the country, output touching almost 50,000 tons now from less than 1000 tons in 1985 (Verma, 2002) [6]. Cultivation of Oyster mushroom is also becoming very popular, because of its wider adaptability, easily cultivable and over and above highly suitable for a developing country like Indi, with vast areas under tropical and sub-tropical zones.

Scenario of mushroom cultivation in different states

Till 1980, cultivation of white button mushroom was confined to the Northern Hill States of Jammu and Kashmir and Himachal Pradesh. However, there has been a remarkable change in its scenario and it has now spread its wing, all over the country from Jammu and Kashmir in north to west Bengal and North East to East (Chadha, 1994) [1].

Mushroom production in H.P. alone has crossed 8000 tons mark since the establishment of two Commercial/Export Oriented Unit at Paonta Sahib and Nalagarh, each producing more than 3000-3500 tons per annum. Seasonal mushroom cultivation is confined to Solan, Shimla, Kangra and other cooler region in the state. In Punjab, several cold storage are reported to have been converted into mushroom growing units. One such large Export oriented Unit is located at lalru with annual production of more than 75% of total mushroom production comes from seasonal growers concentrated near Sonepat. Medium sized commercial units are located near Gurgaon, Panipat, Kalka and Hisser districts with total production of about more than 8000 tons of fresh mushrooms. With the creation of Uttaranchal, from Uttar Pradesh, the mushroom activity is now confined to seasonal growing in the areas, particularly Saharanpur, Agra, Ghaziabad, Aligarh, Lucknow and some other places. The mushroom growing in central U.P. is confined to a few units at Allahabad and Kanpur with no activity in eastern part of state. The present total production stands at 2000-2500 tons only (PERSONNEL

COMUNICATION). In the states of Uttaranchal, oyster mushroom cultivation is emerging as one of the leading cottage industry in and around Dehradun.

In Madhya Pradesh, besides, some commercial units in Bhopal and Indore, M.P. Agro Industries Corporation is endeavoring to popularize mushroom cultivation in the state. With the introduction of new state of Chhattisgarh, Oyster mushroom cultivation is being taken up in the tribal area particularly in and around Raipur, with total annual production of more than 1500 tons estimated. In Rajasthan and Gujarat, button mushroom cultivation is still confined to experimental level; however oyster mushroom is being cultivated by some mushroom growers. In Bihar, Bhagalpur, Purnea and Hazaribagh areas are producing mushroom on small scale. The mushroom cultivation activity in the state of Maharashtra is confined to Mumbai and Pune, with total annual production estimated around 8000 tons, while annual production of mushroom in Goa is around 12-15 tons produced mainly by one big Export oriented Units, based at Panaji (Dhar, 1997) [2]. Darjeeling hill is main centre of mushroom production in West Bengal. Industrialists and entrepreneurs of Southern and Western States of Tamil Nadu, Karnataka, Kerala, Andhra Pradesh and Maharashtra are adopting mushroom cultivation on large scale. The main mushroom producing centres are Bangalore, Hyderabad, Pune, Chennai, Munnar, Ooty and Coimbatore (Chadha, 1994) [1].

With the concentrated efforts of research workers and interested growers, there has been a considerable increase in mushroom production particularly in the last one decade. Mushroom production, which was estimated at 100 tons in 1970, rose to 400 tons in 1975, 1000 tons in 1986, 7000 tons in 1990, 12000 tons in 1992, 25,000 tons in 1993 and more than 50,000 tons at present. However this production is negligible, considering the world mushroom production of over 5 million tons mostly contributed by Europe (55%), North America (27%) and Eastern Asia (14%) (Verma, 2002) [6]. At present, white button mushroom is very popular among growers in India, contributing more than 85% of total production closely followed by Oyster mushroom which is being cultivated in tropical and sub-tropical regions. Paddy straw has not made any further progress because of poor and unpredictable yield.

Mushroom Research and Development

Mushroom Research laboratory of Department of Mycology and Plant Pathology, College of Agriculture, Solan affiliated to HPKVV, Palampur earlier and now to Dr. Y. S. Parmar University of Horticulture and forestry nauni is the pioneer Research Institute in the field of mushroom Research and development IN the country. Out of its many salient research achievements made in the field of mushrooms, the outstanding one's are parameters of spawn production technology, use of spent compost and farm yard manure, casing materials and identification and management of important diseases, insect pest and nematodes problem. An ICAR sponsored, co-ordinated scheme on mushroom research was started in 1971, with sub-centres in various zones of the country viz. Solan, Ludhiana, Bangalore and New Delhi. This was converted into an All India Co-ordinated Research Project on Mushroom in 1983, to conduct research in various agro-climatic zones to tackle region based problem and to test technologies developed by various centres. Now the project is operational in 8 centres in 7 States of Punjab, U.P. Rajasthan, M.P., Tamil Nadu, Maharashtra and Goa (Chadha, 1994) [1].

In recognition of excellent research and development work done by various organizations in the field of mushroom, Indian Council of Agricultural Research opened a National Centre for Mushroom Research at Solan in 1993, for carrying out systematic research and extension activities in the field of mushroom. Besides NRCM, work on mushroom research and development is going on in all the State Agricultural Universities, other traditional Universities, Defence Research Institute and some autonomous Organization, throughout the country. Research has led to improved production technology of button and oyster mushroom, cultivation technology of temperature tolerant button mushroom, integrated pest management practices for control of economically important diseases, insect pest and nematodes has been worked out and recommended to the mushroom growers.

Beside research, extension activities for popularizing mushroom cultivation in the country, namely, conducting training camps, organizing Kisan mela and through exhibition, have been taken up by State Agricultural Universities and State Government Departments, with facilities for providing consultancy services for establishment of commercial mushroom units. In addition to large infrastructure maintained for financial back up for research and development on mushroom, there are large numbers of financial assistance available for setting up of large mushroom units in the country. The marketing support by way of purchase of mushrooms at support price by the Government agencies is a great help to the small and marginal, seasonal mushroom growers in the country (Dhar, 1997) [2].

Reason for slow progress of mushroom industry in India

The retardation of progress is due to the following reasons:

1. Non-availability of funds.
2. Poor harvest management and marketing
3. No serious efforts have been made in popularizing other edible mushrooms in spite of abundant availability of raw materials, cheap labour force and suitability of agro-climatic conditions.
4. No serious efforts have been made for collection and subsequent evaluation of locally available germplasm suitable for various agro-climatic conditions.
5. Use of unpasteurized compost widely prevalent with small growers.
6. Utilizing locally available substrates for compost preparation has not been fully explored.
7. Pasteurization technique for compost and casing need to be refined.
8. Technology for successful cultivation of Oyster and Paddy straw Mushroom needs to be properly standardized.
9. Serious efforts need to be made to evolve cheap production technology for other edible mushrooms.
10. Research is required with respect to the right stage of picking, grading and preservation.
11. Practical training is necessary to create right environment as well as awareness to properly learn the art of mushroom growing.

Future scope of mushroom industry in India

In spite of all major constraints, face mushroom industry, the current Indian scenario is quite encouraging with an overall increase in production by 5 to 6 times. During the last one

decade, estimated production is likely to cross 50,000 tons (Verma, 2002) [6] of all types of mushrooms. However, this is very small quantity if the vast market potential of this large country is to be fully exploited. Mushroom industry has a bright future in India, chiefly because of large quantity of agro-byproducts and agro-waste generated, as well as availability of large and cheap labour force. This will not only provide a gainful employment to our rural youths, but cost of mushroom production per unit area will be greatly reduced. The educated unemployed will be tempted to adopt mushroom cultivation as their profession, by creating awareness about this 'health food'. With the establishment of mother compost unit and spawn laboratories in different agro-climatic zones of our country, the techniques required for cultivation of mushroom are readily available now.

Conclusion

With the concerted efforts of all those involved in mushroom research and development, the Indian growers and consumers will have to be made aware of the qualities of mushrooms particularly the nutritional and medicinal values of the cultivated species, so the mushroom may occupy their due place in Indian diet in general and vegetable meals in particulars with increase in per capita consumption of mushroom. By the year 2020 AD, the mushroom production may touch the magic figure of 6, 00,000 tons per annum if present expansion of infrastructure is any indication.

References

1. Chadha KL. Mushroom Research, 1994; 3(1):1-4.
2. Dhar BL. Advances in Mushroom Biology and Production, 1997, 359-378.
3. Munjal RL. Souvenir and Abstracts, Indian Mushroom conference, held on Sep 10-12, 1997 at NCRM Solan, 1997, 1-89.
4. Purkayastha RP, A. Chandra, Trans Br. Mycol. Soc. 1974; 62:415-418.
5. Thomas Ramakrishnan KMTS, Narasimhan IL. Madras Agriculture Journal. 1943; 31:57-59.
6. Verma RN. Recent Advances in the cultivation Technology of Edible Mushrooms, NRCM Solan, 2002, 1-10.