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Perception of farmers and stakeholders toward mushroom production in Andaman Islands

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Abstract
The present study was conducted to find out the perception of farmers and other stockholders towards mushroom cultivation for entrepreneurship development in Andaman and Nicobar Islands. A total of 25 training cum awareness programme were conducted in 22 villages during 2015 to 2020 in which 550 trainees belonging to various groups such as practicing farmers, farm women, rural youths, extension functionaries, house wives, Self Help Group and college students were participated. During the interactions the maximum perception index (22.5) was recorded in Birdline villages in which the members of entire community shown their keen interest in mushroom cultivation. Among all the community members, 81.82 percent of house wives and 63.64 percent of farm women were very curious to take mushrooms as new venture. Among all the participants, 80.31 and 8.32 percent exhibited positive and very positive perception towards mushroom cultivation respectively, while 11.3 percent showed negative perception may be due to of fear of mushroom toxicity or involvement in other business. The study revealed that mushroom cultivation has great opportunity for the farming communities of these islands which is creating a new livelihood option and also improve the status of farm women in the society.

Keywords: Empowerment, entrepreneurship, farm women, oyster mushroom, perception index

Introduction
Andaman and Nicobar group of Islands is distantly situated in Bay of Bengal from the mainland India, between 6-14^0 N latitude and 92-94^0 E longitude and constitutes 572 nos. of islands. Out of 572 islands, 30 islands are only human inhabited and agricultural activities are being undertaken. The annual rainfall varies from 2900 to 3100 mm with mean maximum and minimum temperature of 32 °C and 22 °C, respectively. The relative humidity varies from 68 to 86%. Island climatic condition is quite congenial for growing mushroom. The ample availability of paddy straw in the islands favoured by very low cattle population which could efficiently utilized for mushroom cultivation. The other agro-wastes like banana leaves, areca nuts sheath, saw dust etc. can also be used as substrates along with paddy straw. Mushroom cultivation has tremendous potential for recycling of agrowaste, forest waste into highly nutritious food and become future agricultural revolution after the Green Revolution. Mushrooms are good source of proteins (Assemie and Abaya, 2022) [4], vitamins, minerals (Kochan *et al.*, 2019) [12], polyphenol (Thakur and Singh, 2025) [19], polysaccharides (Yin *et al.*, 2021) [22] and fatty acids (Sande *et al.*, 2019) [14]. Mushroom become valuable dietary supplements as it contains lysine, threonine, tryptophan, methionine and cystine as essential amino acids (Thakur, 2020; Ayimbila and Keawsompong, 2023) [20, 6]. Islands have very limited agricultural land which offer mushroom production as food and nutritional security (Pandey *et al.*, 2018, Adedokun and George-David, 2016) [13, 1]. The prevailing climatic condition of Island supports the cultivation of three mushroom species viz., *Pleurotus* (Oyster mushroom), *Volveriella* (paddy straw mushroom) and *Calocybe* (milky mushroom). Among them, Oyster mushroom can cultivate through the years as a seasonal cultivation without environmental interference. Its cultivation technology is ecofriendly, less expensive and provides nutritional and livelihood security along with income generations and cottage industries purpose. It is one of the best agro-technology for better remuneration and empowerment of farm women and rural youths. For spending each 50-60 rupees, the farmer could earn 250-300 rupees with existing facility in addition to nutritional and health benefit for the family members.

Oyster mushroom cultivation is relatively simple and easy to follow by all kinds of growers. Education awareness on growing and/or consuming of mushroom support sustainable food system by impacting the economic, environmental, and socio-cultural dimension of sustainability of the Islands. Andaman and Nicobar Islands is a famous tourist destination and there is increasing demand of mushroom in hotels by tourists. So mushroom cultivation will enhance the economy by creating employment opportunities among the farming communities. The present study was undertaken with the specific objective to assess the perception of farmers and other stockholder in mushroom production in Andaman Islands.

Materials and Methods

Farmers' interest assessment study was undertaken to know the view of farming community on mushroom cultivation. During the study training cum awareness programmes for practicing farmers, farm women, rural youths, extension functionaries, house wives and college students were conducted in twenty-two villages of South Andaman district. A structured questionnaire containing questions on mushroom cultivation and their opportunity framed to elicit information from farmers and other stakeholders. Information from a total of 550 participants in various groups from twenty-two villages was collected. The view towards mushroom cultivation of each participant was determined using a perception rating scale for the five main types (A, B, C, D, E) and seven sub-types of reactions. The details of categories and their score card was given in Table. No1.

Table 1: Farmer perception rating scale

Type of perception	Perception category	Score
Not interest in mushroom cultivation	A_0	0.5
Fear about mushroom cultivation	A_1	1
No opportunity in mushroom cultivation	A_2	1.5
Showing keen interest about mushrooms	B	2
Mushroom is very nutritious food	B_1	2.5
Good opportunity in mushroom cultivation	C	3
Partially interested in mushroom cultivation	D	3.5
Interested but do not have infrastructure	D_1	4
Interested and having infrastructure but do not have any practical knowledge	D_2	4.5
Create infrastructure facility	E	5
Production starts quickly	E_1	5.5
Interested in both mushroom production & Spawn	E_2	6

The perception index (PI) was then calculated for each fungal species using the following formula:

$$PI = 0.5nA_0 + 1nA_1 + 1.5nA_2 + 2nB + 2.5nB_1 + 3nC + 3.5nD + 4nD_1 + 4.5nD_2 + 5nE + 5.5nE_1 + 6nE_2$$

Where n = frequency of each type or sub type of perception.

Results

A total 25 training cum awareness programmes were conducted in 22 villages of South Andaman and North and Middle Andaman districts. During the programmes 550 participants with categories of practicing farmers, farm women, rural youth, extension functionaries, house wives and college students were participated. In training programmes various aspect of mushroom cultivation (general introduction of mushroom, nutritional and medicinal value of mushroom, infrastructure requirement, employment generation etc.) were imparted to trainees to make them aware of general information about mushroom cultivation. The individual opinions of the participants were assessed through questionnaires.

The various perceptions of interaction among farming community of different villages are presented in Table 2 to 5. Five types of main and seven sub types of responses were observed. During interplay the maximum perception index was observed in Birdline (22.5) followed by Shaeed Dweep (22), Manglutang (21.5), KVK, Port Blair (21.5) and Guptapara (21). As Bird line village is very near to city area of Port Blair, almost all communities of the village have shown their interest in mushroom cultivation. The rural youths of Shaeed Dweep were ready to construct mushroom shed while practicing farmers, farm women and house wives were also agreed in mushroom cultivation but most of them are facing major constraints of infrastructure. Farm women of Guptapara and Manglutang villages have committed to start mushroom cultivation within a month.

Table 2: Perception index of various villages against different community groups

S. No	Name of Village	Perception Index *[PI]	Perception responses of different stakeholders					
			**PF	FW	RY	EF	HW	CS
1	Sippighat	14	A_0	B	C	B_1	D_1	B_1
2	Guptapara	21	D	E_1	B	D	D_2	B
3	Humfrigunj	19	D_1	E_1	B	B	D_1	A_2
4	Mithakhari	16	B	D	D_1	B	B_1	B
5	KVK, Port Blair	21.5	D	E	D_1	B	D_2	B_1
6	Birdline	22.5	D_2	D_1	E_2	B_1	D	B
7	Swaraj Dweep	18	D	D_1	B	B	E	B
8	Shaeed Dweep	22	D	D_2	E	B	D_2	B_1
9	Manglutang	21.5	D	E_2	D	B	D	C
10	Ferrargaunj	10	A_0	D	C	B	A_1	B_1
11	Badmash pahad	14.5	A_0	E	A_2	B	D	B
12	Port Mout	10.5	A_0	D	A_0	B	B	B
13	Collinpur	16	A_0	E	B	B	D_2	B
14	Manpur	16.5	A_2	D_2	B_1	B	D_1	B
15	Tushanabad	14.5	A_0	D	B	B	D_2	B
16	Rangachang	13.5	A_0	D	B	B	D	B
17	Baratang	20	D	D	D	B	D_1	D
18	Hut Bay	21	E	D	D_1	B	D_2	B
19	Webi village	21.5	D	E	D	B	D_2	B
20	Herbertabad	15	A_0	D_2	B	B	D_1	B
21	Wandoor	16.5	B	D_2	B_1	B	D	B
22	Hasmatabad	12	A_0	D	A_0	B	D	B

***** (Perception Index (PI): describe in methodologies)

** PF: Practicing Farmers, FW: Farm Women, RY: Rural Youths, EF: Extension functionaries HW: House wives, CS: College Students

On the basis of the Perception index (PI) values, various villages were categorized into four groups: I-Very active (PI >20), II-active (PI 16-20), III-moderately active (PI 11-15) and IV weakly active (PI <10) the details are presented in Table 3. The farmers belonging to very active group were enthusiastically adopted mushroom cultivation as new enterprise for employment generation during short periods of time while the majority of farming communities and other stakeholders showed partial interest in mushroom cultivation (D type group interaction).

Table 3: Perception activity groups of different villages

Group	Perception Index	Number of Villages	Details of villages
Weakly active	1-10	1	Ferrargunj
Moderately active	11-15	7	Sippighat, Badmash Pahad, Port Mout, Tushanabad, Rangachang, Herbertabad and Hasmatabad
Active	16-20	7	Mithakhari, Humfrigunj, Swaraj Dweep, Collinpur, Manpur, Baratang and Wandoor
Very Active	>20	7	Guptapara, KVK Port Blair, Birdline, Shaeed Dweep, Manglutang, Hut Bay and Webi village

Table 4: Percent frequency interaction between villages and participants (550)

Negative perception of various community		Positive perception of various community		Very positive perception of various community	
Interaction Type	Frequency (%)	Interaction Type and sub type	Frequency (%)	Interaction Type and sub type	Frequency (%)
A_0	8.33	B	34.09	E	5.30
A_1	0.76	B_1	6.82	E1	1.51
A_2	2.27	C	2.27	E2	1.51
		D	19.70		
		D_1	8.33		
		D_2	9.10		
Total	11.36	Total	80.31	Total	8.32

For legend see Table 2.

Table 5: Percent interaction frequency of various groups of farming community against main interaction category.

Interaction category	Groups of farming communities					
	PF	FW	RY	EF	HW	CS
A	*45.45	0	13.64	0	4.54	4.54
B	9.09	4.54	40.09	95.45	9.09	86.36
C	0	0	9.09	0	0	4.54
D	40.09	63.64	27.27	4.54	81.82	4.54
E	4.54	31.82	9.09	0	4.54	0

*Percent interaction among 550 farmers

The percent frequency interaction between the villages and their farming community and other stockholders are shown in Table 4. The maximum frequency of 80.31 percent was recorded in positive perception where the group member shown reliance on mushroom cultivation followed by 11.36 percent negative perception in which either the community member was fearing about mushroom or not interested in mushroom cultivation. Among the whole interaction 34.09 percent community members were shown keen interest to know about the mushroom and 19.70 percent partially interested and 8.32 percent confidently inclined towards mushroom cultivation.

The patterns of percent interaction category of diverse farming community over various type of interaction were presented in Table 5. The interaction category is very much variable. The partial/absolutely interest in mushroom cultivation was most common (81.82%) in categories of House wives followed by Farm women (63.64.0%) and Practicing Farmers (40.09%). Very confident in mushroom cultivation was observed in categories of farm women (31.82%) followed by rural youth (9.09%) and house wives (4.54%). Among the entire participating groups practicing farmers showed (45.45%) negative interaction which exhibits fear about mushroom toxicity and no interest in mushroom. During the study, it was found out that the natures of perception are dependent on type of farming community and their existing facility. Farm women and house wives have strong affinity towards mushroom cultivation.

Discussion

In our present work, perception of various farming group toward oyster mushroom cultivation have been investigated to assess the feasibility of mushroom cultivation in Andaman and Nicobar Islands as livelihood option. To our knowledge no investigation has been performed for comparing perception of farming communities toward mushroom cultivation in Andaman Islands. However, Kaur, (2016) [11] study the impact of training course on knowledge gain of mushroom trainees. Sunita and Sikha, (2015) [18] reported the positive attitude of women farming communities on oyster mushroom cultivation adoption. Mushroom enterprises become important source of employment and income to reduce poverty, especially in rural area (Zhang *et al.*, 2014) [23]. Alfred and Arifalo, (2012) [2] concluded that mushroom farming is of high commercial value to people and is a source of nutrients for people. Jonnatul *et al.*, (2019) [10] reported that mushroom farming does not only help in producing empowerment but also help to alleviate the poverty status of the rural farmers. Ashiegbu *et al.*, (2022) [3] stated that mushroom production is really economically profitable. Sharma *et al.*, (2016) [16] stated that mushroom production as a matter of fact, can help provide employment opportunities for the unemployed, help families live above poverty line and such practice (growing of mushrooms) can as well help to improve the socio-economic characteristics of poor farmers. Ferdousi *et al.*, (2019) [8] described mushroom as an arable cash crop that is high in value, grown by both smallholders and large-scale farmers across the country, eco-friendly and whose profit level cannot be over emphasised but that it is labour

intensive. Thakur, (2021) [21] supported that mushroom cultivation offers business opportunity and can be game changer for rural economic growth. Avanish and Noel, (2023) [5] recommended that constraints in mushroom cultivation should be checked to increase the production through skilled training and awareness programme. Shah, (2021) [15] concluded that many young mushroom entrepreneurs to develop the relevant marketing strategy by understanding the consumer perception regarding mushroom consumption in their regular diet. It was observed that income and education level shows a positive correlation with mushroom consumption, which means as the income and education level of a person increases, the mushroom consumption will also increase (Shirur *et al.*, 2014) [17].

Conclusion

Andaman and Nicobar Islands is a famous international tourist destination and it hosts more than four lakhs tourists annually. The climatic condition of these islands is quite congenial for round year mushroom cultivation which creates new entrepreneurship and big economic gain for farm women, rural youth and practicing farmers. The complete aim of major determining factor affecting farmers' perception about oyster mushroom cultivation from various farming communities provide pen picture strategies for future needs, assistance and way to proceed further for popularization of mushroom cultivation in Andaman and Nicobar Islands. This study also provides futuristic way for livelihood option for islanders. During the training cum awareness programmes majority of the participants had shown keen interest towards mushroom cultivation. Farm women and house wife were ready to take mushroom cultivation as livelihood option which improves their economic and social status in their family and village. Mushroom cultivation is a new venture in these islands, hence motivation of farming communities, practical training, on farm methods demonstration, awareness about nutritional and medicinal properties and market linkage will be required for mushroom revolution in Andaman Islands.

Disclaimer (Artificial Intelligence)

Authors (s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during writing or editing of this manuscript.

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Competing Interests

Authors have declared that no competing interests exist.

Authors' Contributions

Author A' designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. 'Author B', C', D', managed the analyses of the study the literature searches. All authors read and approved the final manuscript.

References

1. Adedokun OM, George-David M. Nutritional profile and yield of oyster mushroom cultivated on selected agricultural wastes. Afr Crop Sci J. 2016;24(3):259-266.
2. Alfred SD, Arifalo SF. Socio-economic and cultural factors that affect mushroom production in southwest Nigeria. Agric Trop Subtrop. 2012;45(2):78-83.
3. Ashiegbu GN, Olagunju O, Onyeabor EN. Participation of rural youths in mushroom production in Umuahia agricultural zone, Abia State, Nigeria. Int J Agric Manag Dev. 2022;12(1):1-9.
4. Assemie A, Abaya G. The effect of edible mushroom on health and their biochemistry. Int J Microbiol. 2022;2022:8744788.
5. Avanish, Noel AS. Constraints and suggestions regarding supply chain of mushroom cultivation in Dehradun district of Uttarakhand, India. Asian J Adv Agric Res. 2023;22(3):1-8.
6. Ayimbila F, Keawsompong S. Nutritional quality and biological application of mushroom protein as a novel protein alternative. Curr Nutr Rep. 2023;12:281-298.
7. Doroški A, Klaus A, Režek Jambrak A, *et al.* Food waste originated material as an alternative substrate used for the cultivation of oyster mushroom (*Pleurotus ostreatus*): a review. Sustainability. 2022;14(19):12509.
8. Ferdousi J, Al Riyadh Z, Hossain MI, Saha SR, Zakaria M. Mushroom production benefits, status, challenges and opportunities in Bangladesh: a review. Ann Res Rev Biol. 2019;34(6):1-13.
9. İnci Ş, Kirbağ S, Akyüz M. Valorization of local agro-residues for the cultivation of *Pleurotus djamor* (Rumph. ex Fr.) Boedijn and their effects on nutritional value. Biomass Convers Biorefin. 2024;15:22567-22576.
10. Jannatul F, Zabid R, Hossain MI, Satya RS. Mushroom production benefits, status, challenges and opportunities in Bangladesh: a review. Ann Res Rev Biol. 2019;34(6):1-13.
11. Kaur K. Impact of training course on knowledge gain of mushroom trainees. J Krishi Vigyan. 2016;4(2):54-57.
12. Kochan Z, Jędrzejewska K, Karbowska J. Vitamin D in edible mushrooms: biosynthesis, contents, bioavailability, and nutritional significance. Postepy Hig Med Dosw. 2019;73:662-673.
13. Pandey VV, Kumari A, Kumar M, *et al.* Mushroom cultivation: substantial key to food security. J Appl Nat Sci. 2018;10(4):1325-1331.
14. Sande D, Oliveira GP, Moura M, *et al.* Edible mushrooms as a ubiquitous source of essential fatty acids. Food Res Int. 2019;125:108524.
15. Shah TD. Analysis of consumer perceptions regarding mushroom consumption in their regular diet: a case of Western India (Gujarat). Sarhad J Agric. 2021;37(2):613-621.
16. Sharma D, Kumar A, Guleria JS. Economic viability, technological gap and problems of mushroom cultivation in Mandi district of Himachal Pradesh. Himachal J Agric Res. 2016;42(1):47-54.
17. Shirur M, Ahlawat OP, Manikandan K. Mushroom consumption and purchasing behaviour in India: a study among selected respondents. Mushroom Res. 2014;23:225-231.

18. Sunita K, Sikha C. Adoption level and constraints in scientific oyster mushroom cultivation among rural women in Bihar. Indian Res J Ext Educ. 2015;15(3):11-16.
19. Thakur MP, Singh HK. Exploring untapped potentials of medicinal mushrooms in India. Agric Mushroom Chronicles. 2025;8(1):7-15.
20. Thakur MP. Advances in mushroom production: key to food, nutritional and employment security: a review. Indian Phytopathol. 2020;73(3):337-395.
21. Thakur MP. Editorial: mushrooms—immunity boosters and income generators. J Mycopathol Res. 2021;59(2):i-iii.
22. Yin Z, Liang Z, Li C, *et al.* Immunomodulatory effects of polysaccharides from edible fungus: a review. Food Sci Hum Wellness. 2021;10:393-400.
23. Zhang Y, Geng W, Shen Y, Wang Y, Dai YC. Edible mushroom cultivation for food security and rural development in China: bio-innovation, technological dissemination and marketing. Sustainability. 2014;6(5):2961-2973.