Plant Archives Vol. 25, Supplement 2, 2025 pp.524-530 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org
DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2025.v25.supplement-2.062

STUDIES ON THE EFFICACY OF HOMEOPATHIC MEDICINES ON GROWTH AND YIELD POTENTIAL OF OYSTER MUSHROOM (*PLEUROTUS SAJOR-CAJU* FR. SINGER)

Priyanshu Singh[1], S.K. Biswas[1], Anju Shukla[1*], Shivam Kumar[2], Sneha Gupta[1], Saurabh Saini[1], and Akash Kumar Kamal[1]

[1]Department of Plant Pathology, C.S. Azad University of Agriculture and Technology, Kanpur, (Uttar Pradesh), India.
[2]S.M.S. (Plant Pathology), Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, 224229 (Uttar Pradesh), India
*Corresponding author E-mail: shukla32111@gmail.com
(Date of Receiving : 10-03-2025; Date of Acceptance : 11-05-2025)

ABSTRACT

Oyster mushroom (*Pleurotus* spp.), known as Dhingri in India, is the second most cultivated mushroom globally and in India. In last few years, many scientific research revealed that potentised homeopathic medicines may influence metabolic pathways in mushrooms, leading to improved yield and quality. Four different homeopathic medicines namely, *Arnica Montana, Arsenicum Album, Phosphorus and Magnesium Carbonica* were taken in two different concentrations as 1:1000 and 1:500 each. All the homeopathic medicines were able to support the growth of *Pleurotus sajor-caju*. Best results were obtained in the higher dilution that is 1:1000. *Magnesium carbonica* (1:1000) showed the best results in case of various observations such as fastest spawn running in 13 days, earliest pinhead formation in 17 days as compared to 20.8 days in case of control. The Maximum total yield was recorded in *Magnesium carbonica* (1:1000) as 1350 gm. The maximum biological efficiency was found in *Magnesium carbonica* (1:1000) as 90 % against 76 % in case of control where only wheat straw was given as substrates. Homeopathic treatments thus offer a promising way to boost Oyster mushroom productivity.
Keywords **:** Oyster mushroom, Homeopathic medicines, spawn running, pin head formation, biological efficiency.

Introduction

Mushrooms have been recognized as one of the most valuable natural resources for human nutrition, medicine, and environmental sustainability. There are around 12,000 mushroom species which exists worldwide, of which 2000 are edible mushroom species. Among them, Oyster mushrooms (*Pleurotus* spp.) hold particular significance due to their nutritional profile, health benefits, and ease of cultivation. Oyster mushrooms are rich in proteins (19-35% of dry weight), dietary fiber (particularly β-glucans), and essential micronutrients while being low in fat and calories (Rathore *et al*., 2017). It is the second most widely cultivated mushroom in the globe and the second most widely cultivated in India. Oyster mushroom is an edible mushroom of excellent taste and flavor (Mondal *et al.*, 2010).

World food and nutritional security with increasing population pressure is a big challenge among agricultural scientists. The cultivation of oyster mushrooms offers significant economic and environmental advantages, particularly in developing regions. These mushrooms can be grown on a variety of agricultural by products, including paddy straw, wheat straw, sawdust, and even cotton waste, converting low-value substrates into high-protein food (Baldrian, 2008).

The use of homeopathic treatments in mushroom cultivation has gained attention as an alternative to chemical fungicides and growth enhancers, promoting organic and sustainable farming practices.

Homeopathic medicines, derived from highly diluted natural substances, are believed to stimulate biological processes in plants and fungi without leaving harmful residues (Khanna & Chandra, 2016). In mushroom cultivation, homeopathic preparations such as Silicea, Arsenicum album, and Sulphur have been experimentally applied to suppress fungal contaminants like *Trichoderma* and *Aspergillus*, which commonly affect mushroom yields (Singh *et al*., 2018). Additionally, homeopathic treatments have been reported to enhance mycelial growth and fruiting body development by improving nutrient absorption and stress resistance in mushrooms (Patel & Desai, 2020).

Studies suggest that homeopathic remedies may influence metabolic pathways in mushrooms, leading to improved yield and quality. Furthermore, homeopathic treatments can reduce dependence on synthetic pesticides, aligning with the growing consumer demand for organic mushrooms (Kumar & Sharma, 2021).

Materials and Methods

Preparation of mushroom culture from fruiting body

The fruiting body of mushroom was collected and was rinsed with tap water to remove debris, and its outer layer was peeled off using a sterile razor. Small inner tissue pieces (2–3 mm) were sterilized in 1% sodium hypochlorite for one minute, rinsed three times with distilled water, and dried on sterile blotting paper. These pieces were then placed on PDA slants in culture tubes and petri dishes. Incubation at 25 ± 2 °C in a BOD incubator promoted mycelial growth. The culture, identified as *Pleurotus sajor-caju* based on morphology, was periodically sub cultured for further use.

Maintaining of mushroom culture

The fungal culture medium (PDA) was sterilized by autoclaving at 121.6°C and 15 psi pressure for 15 minutes. Under aseptic conditions in a laminar flow chamber, a 9 mm mycelial disc was aseptically transferred from a pure *Pleurotus sajor-caju* culture to the center of each petri plate using a sterilized cork borer. The inoculated plates were sealed with paraffin tape and incubated at 25±2°C, with visible white mycelial growth appearing within 48 hours. The laboratory's culture chamber was regularly cleaned by first washing it gently with detergent and then using 70% ethyl alcohol.

Assessment of radial growth

The radial growth of *Pleurotus sajor-caju* was studied on PDA media containing various homeopathic medicines. For evaluating the radial growth of mycelium, a 9mm mycelial disc was inoculated on to centre of Petri plate containing PDA under aseptic conditions and incubated at 25±2°C, with growth measurements recorded every two days for 10 days using three replicates per treatment. This method allowed for consistent evaluation of mycelial development under controlled conditions.

Preparation of Homeopathic dilutions

Various dilution ratios of different homeopathic medicines can be employed, such as 1:100, 1:200, 1:500, 1:1000, and 1:5000. Research indicates that at higher dilutions, the impact of the vehicle (alcohol) becomes negligible, allowing for the examination of only the drug's lead compound effects. According to Sukul *et al.* (2012), a 1:1000 dilution eliminated the alcohol's influence while maintaining the activity of the homeopathic drug's primary component.

Details of various treatments

The present investigation was conducted at the Mushroom Research and Development Centre, Department of Plant Pathology, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur from 2023 to 2025. Polypropylene bags (75×45 cm) were filled using a layered technique, where wheat straw substrate alternated with *Pleurotus sajor-caju* spawn (2% wet basis), while homeopathic treatments were sprayed between layers. The treatments included: T1 (Wheat straw + *Arnica montana* 1:1000), T2 (*Arnica montana* 1:500), T3 (*Arsenicum album* 1:1000), T4 (*Arsenicum album* 1:500), T5 (Phosphorus 1:1000), T6 (Phosphorus 1:500), T7 (*Magnesium carbonica* 1:1000), T8 (*Magnesium carbonica* 1:500), and T9 (Wheat straw control). After packing, 8–10 holes were punched per bag for aeration and bags were incubated for mycelial growth and fruiting.

Observations recorded

Various observations including radial mycelial growth, growth behaviour (spawn run period, pinhead formation, and three harvesting phases), growth parameters (number, weight, stalk length, cap diameter, and stalk diameter of fruiting bodies), yield potential (per harvest and total), biological efficiency, and fresh/dry weights. Conducted in a Completely Randomized Design (CRD) with 9 treatments and 3 replications, the study used *Pleurotus sajor-caju* (Fr.). Harvesting flushes were monitored at different intervals to assess productivity.

Statistical Analysis

Each treatment was replicated thrice and values were means ± SE. The data were computed using SPSS software version 21.

Results and Discussion

Effect of homeopathic medicines on mycelial growth of *Pleurotus sajor-caju* at different days.

Different homeopathic medicines used as treatments enhanced the mycelial growth of *Pleurotus sajor-caju* on PDA media, assessed at 2-day intervals for 10 days. The results are mentioned in table 1 given below. *Magnesium carbonica* (1:1000) showed the highest growth (90.00 mm) on the 10th day, followed by Phosphorous (1:1000) (86.30 mm) and *Magnesium carbonica* (1:500) (86.00 mm). The lowest growth (79.20 mm) was observed in *Arnica montana* (1:500). The effects of *Magnesium carbonica*, Phosphorous, and *Arsenicum album* were closely comparable. The findings of our experiment were also found relatable to the study of Godse *et al*., (2021) who observed the increased mycelial growth of *Pleurotus sajor-caju* when supplemented with growth regulators like IBA in PDA rather than in PDA alone.

Effect of different homeopathic medicines on spawn running, pin head initiation and harvesting days of *Pleurotus sajor-caju.*

The data presented in Table 2 shows that different homeopathic medicines (*Arnica montana*, *Arsenicum album*, Phosphorous, and *Magnesium carbonica*) variably affected spawn running, pin head formation and harvesting days of *Pleurotus sajor-caju*. *Magnesium carbonica* (1:1000) recorded the shortest spawn running time (13 days), followed by Phosphorous (1:1000) (13.33 days), while *Arnica montana* (1:500) took the longest (17 days) compared to the untreated control (15.67 days).

The shortest pinhead initiation time of 17 days was observed in *Magnesium carbonica* (1:1000) compared to 20.80 days in the control. T5 ranked second with 17.33 days followed by T8 (18 days) and T3 (18.33 days). The maximum time of 21.33 days occurred in *Arnica montana* (1:500) (T2).

The data presented in table 2, showed that the minimum number of days for 1st, 2nd and 3rd harvesting was recorded in *Magnesium carbonica* (1:1000) treated bag, which is 20.67, 33.67 and 40.67 days, respectively followed by *Phosphorus* (1:1000) treated bag which is 21.67, 34.67 and 41.33 days, respectively. The maximum number of days of first, second and third harvesting was recorded in treatment T_2 containing *Arnica montana* (1:500) which is 25.33, 40.57and 47.67 days, respectively against untreated bag as 24.70, 39.67 and 46.67 days, respectively. The findings of our result were found relatable to the study of Nirdesh *et al*., (2019).

Effect of different homeopathic medicines on growth parameter of *Pleurotus sajor-caju*.

The results pertaining to effect of homeopathic medicines on various growth parameter of *Pleurotus sajor-caju* is presented in table 3.

Average number of fruiting bodies

Magnesium carbonica (1:1000) produced the highest average fruiting bodies (16.73), followed by Phosphorus (1:1000) (16.91). *Arnica montana* (1:500) yielded the lowest average number of fruiting bodies (12.01). The result of our study is also associated with the result outcome of Kumar *et al*., (2011).

Average weight of fruiting bodies

Magnesium carbonica (1:1000) yielded the highest average weight of fruiting bodies (20.33 g), followed by Phosphorus (1:1000) (19 g). *Arnica montana* (1:500) showed the lowest average weight (15.27 g), while the control averaged 17 g.

Average stalk length of fruiting bodies

Fruiting bodies showed different stalk length when treated with different homeopathic medicines. The highest average stalk length was noticed of 3.03 cm was noticed in *Magnesium carbonica* (1:1000), which was followed by *Phosphorus* (1:1000) as 2.80 cm. Least average stalk length observed was 2.00 cm in *Arnica montana* (1:500) whereas, in control it was observed to be 2.30 cm.

Average cap diameter

Magnesium carbonica (1:1000) produced the largest cap diameter (8.37 cm), followed by Phosphorus (1:1000) (6.84 cm) and *Magnesium carbonica* (1:500) (6.27 cm). *Arnica montana* (1:500) yielded the smallest cap diameter (5.33 cm), while the control measured 5.56 cm. Other treatments also showed satisfactory results. Gunde and Cinerman (1995) reported that oyster mushroom has an average cap diameter of 5 to 25 cm at maturity and the results of this work are within the range reported by them.

Average stalk diameter

Similarly, the maximum average stalk diameter of 4.44 cm was found in the *Magnesium carbonica* (1:1000), followed by 4.01 cm and 3.27 cm in *Phosphorus* (1:1000) and *Magnesium carbonica* (1:500), respectively. Minimum average stalk diameter

was observed as 2.50 cm in *Arnica montana* (1:500) treated bag.

Effect of different homeopathic medicines on yield potential of *Pleurotus sajor-caju*

Pleurotus sajor-caju was harvested in 3 flushes and the data presented in the table 4 shows that the maximum yield was obtained in the 1st flush and was further reduced in subsequent flushes. *Magnesium carbonica* (1:1000) gave the highest yields as 530 gm in 1st harvest, 470 gm in 2nd, and 350 gm in 3rd harvest, overall, 1350 gm in all the flushes combined. Phosphorus (1:1000) followed with 518 gm, 468 gm, and 350 gm (total: 1335 gm). *Arnica montana* (1:500) showed the lowest yields: 443 gm, 330 gm, and 175 gm (total: 948 gm). Control yields were 502 gm, 421 gm, and 217 gm. *Magnesium carbonica* (1:500) and *Arsenicum album* (1:1000) ranked 3rd (1290 gm) and 4th (1255 gm), respectively. Nirdesh *et al*., (2019) found that *Pleurotus sajor caju* was harvested in 5 flushes, with maximum yield obtained in the first flush, then the second and third flushes in all combinations.

Effect of different homeopathic medicines on biological efficiency of *Pleurotus sajor-caju*

The data presented in table 5 shows the suitability of different homeopathic medicines on biological efficiency of *Pleurotus sajor-caju*. The results show the *Magnesium carbonica* (1:1000) achieved the highest biological efficiency of 90% as compared to control (76%). Phosphorus (1:1000) and *Magnesium carbonica* (1:500) ranked second (89%) and third (86%), while *Arnica montana* (1:500) showed the lowest biological efficiency of 63.20%. Table 5 confirms variability in biological efficiency across treatments. Similar differential biological efficiency of *Pleurotus* spp. with different substrate has been reported by Pandey *et al*. (2008), Sharma *et al*. (2013).

Effect of Homeopathic medicines on Fresh weight, dry weight, and moisture content of *Pleurotus sajor-caju*.

The result in the table 6 showed that the *Magnesium carbonica* (1:1000) performed better than other treatments in terms of dry matter content, showing the value 217.08 gm of total fresh weight. Other treatment such as *Phosphorus* (1:1000), *Magnesium carbonica* (1:500), *Arsenicum album* (1:1000) shows 213.35 gm, 202.65 gm and 184.46 gm dry weight of total yield, respectively which is considered as 2nd, 3rd, and 4th in terms of weight among all the treatments. The lowest weight was recorded in *Arnica montana* (1:500) with value of 155.95 gm indicating inferior performance among all the treatments. Moisture content on wet basis was found lowest in treatment containing *Arnica montana* (1:500) i.e., 83.54 % followed by T_7 (*Magnesium carbonica* (1:1000)) with 83.92 %. Highest moisture content is found in *Arsenicum album* (1:1000) which is 85.30%. Moisture content in the control is found to be 84.81 %. Similar results have been reported by Wang (2010), Yang *et al*. (2013).

Conclusion

The study demonstrated that homeopathic treatments significantly enhanced the growth, yield, and biological efficiency of *Pleurotus sajor-caju* thus can be a promising supplement for improving oyster mushroom cultivation, offering a sustainable approach to boost productivity in mushroom farming.

Table 1 : Effect of Homeopathic medicines on mycelial growth of *Pleurotus sajor-caju* at different days

Name of homeopathic medicines	Concentration	Radial mycelial growth in diameter (mm)				
		2nd day	4th day	6th day	8th day	10th day
T_1= *Arnica montana*	1:1000	20.00	39.20	51.40	68.00	82.92
T_2= *Arnica montana*	1:500	19.57	36.70	50.20	64.40	79.20
T_3= *Arsenicum album*	1:1000	22.00	40.20	52.67	69.00	83.00
T_4= *Arsenicum album*	1:500	20.63	38.00	51.88	68.80	82.70
T_5= *Phosphorous*	1:1000	23.50	42.00	55.00	72.00	86.30
T_6= *Phosphorous*	1:500	21.10	38.20	52.30	68.30	82.78
T_7= *Magnesium carbonica*	1:1000	25.00	43.67	58.67	76.00	90.00
T_8= *Magnesium carbonica*	1:500	23.00	41.50	54.20	72.30	86.00
T_9= Control	-	20.00	38.50	51.00	68.67	82.67
CD (5%)	-	2.038	3.758	4.685	5.762	5.769
SE(m)	-	0.686	1.265	1.576	1.939	1.939
SE(d)	-	0.970	1.789	2.230	2.743	2.742
C.V	-	5.491	5.508	5.149	4.818	3.996

Table 2 : Effect of different homeopathic medicines on spawn running, pin head initiation, harvesting days of *Pleurotus sajor-caju.*

Name of homeopathic medicines	concentration	Minimum number of days required							Total crop period	Percentage change Over control
		Spawn running	Percentage change Over control	Pinhead initiation	Percentage change Over control	1st harves-ting	2nd harves-ting	3rd harves-ting		
T_1= *Arnica montana*	1:1000	15.70	-0.19	20.67	-0.62	24.67	39.58	46.30	46.30	+079
T_2= *Arnica montana*	1:500	17.00	-8.48	21.33	+2.54	25.33	40.57	47.67	47.67	-2.14
T_3= *Arsenicum album*	1:1000	14.33	+8.55	18.33	+11.87	23.00	35.67	43.33	43.33	+7.15
T_4= *Arsenicum album*	1:500	15.33	-2.044	19.67	+5.43	24.00	38.33	46.33	46.33	+0.72
T_5= *Phosphorus*	1:1000	13.33	+14.82	17.33	+16.68	21.67	34.67	41.33	41.33	+11.44
T_6= *Phosphorus*	1:500	15.00	-4.15	19.33	+7.06	23.67	37.67	45.67	45.67	+2.14
T_7= *Magnesium carbonica*	1:1000	13.00	+16.93	17.00	+18.26	20.67	33.67	40.67	40.67	+12.85
T_8= *Magnesium carbonica*	1:500	14.00	+10.54	18.00	+13.46	22.33	35.33	42.00	42.00	+10.00
T_9= Control		15.67	0	20.80	0	24.70	39.67	46.67	46.67	0
CD (5%)		1.420	-	1.8403	-	3.065	3.567	4.260	4.260	-
SE(m)		0.478	-	0.619	-	0.753	1.200	1.434	1.434	-
SE(d)		0.676	-	0.876	-	1.064	1.698	2.020	2.020	-
C.V		5.589	-	5.598	-	5.588	5.584	5.589	5.589	-

Table 3 : Effect of different homeopathic medicines on growth parameter of *Pleurotus sajor-caju.*

Name of homeopathic medicines	concentration	Growth parameters									
		Avg. no. of fruit bodies	Percen-tage increase over control	Avg. wt. of fruit bodies in gram	Percen-tage increase over control	Avg. stalk Length (in cm)	Percen-tage increase over control	Avg. cap Diameter (in cm)	Percen-tage increase over control	Avg. stalk Diameter (in cm)	Percen-tage increase over control
T_1= *Arnica montana*	1:1000	14.67	0	16.97	0	2.28	0	5.54	-0.35	2.76	0
T_2= *Arnica montana*	1:500	12.01	-18.18	15.27	-10.17	2.00	-13.04	5.33	-4.13	2.50	-9.09
T_3= *Arsenicum album*	1:1000	15.00	+2.17	17.57	+3.35	2.56	+11.30	6.03	+8.45	3.12	+13.45
T_4= *Arsenicum album*	1:500	14.60	-0.54	17.30	+1.76	2.31	0	5.57	00	2.80	+9.09
T_5= *Phosphorus*	1:1000	16.91	+11.71	19.00	+11.76	2.80	+21.73	6.84	+23.02	4.01	+45.81
T_6= *Phosphorus*	1:500	14.43	-1.56	17.35	+2.05	2.35	+2.17	5.87	+5.57	3.02	+9.81
T_7= *Magnesium carbonica*	1:1000	16.73	+13.96	20.33	+19.58	3.03	+31.73	8.37	+50.53	4.44	+20.14
T_8= *Magnesium carbonica*	1:500	15.75	+7.22	18.00	+5.88	2.77	+20.43	6.27	+12.76	3.27	+18.90
T_9= Control	-	14.68	0	17.00	0	2.30	0	5.56	0	2.75	0
CD (5%)	-	1.422		1.671		0.235		0.576		0.296	
SE(m)	-	0.478		0.562		0.079		0.1941		0.099	
SE(d)	-	0.677		0.795		0.112		0.274		0.140	
C.V		5.538		5.521		5.514		5.463		5.418	

Table 4 : Effect of different homeopathic medicines on Yield potential of *Pleurotus sajor-caju.*

Name of homeopathic medicines	Concentration	Weight of different flushes (in gm)			Total yield in gm	Yield increase over control (in %)
		1st harvest	2nd harvest	3rd harvest		
T_1= *Arnica montana*	1:1000	495	425	220	1140	+0
T_2= *Arnica montana*	1:500	443	330	175	948	-16.84
T_3= *Arsenicum album*	1:1000	507	448	300	1255	+10.08
T_4= *Arsenicum album*	1:500	504	423	219	1146	+0.52
T_5= *Phosphorus*	1:1000	518	468	349	1335	+17.10
T_6= *Phosphorus*	1:500	504	440	266	1210	+6.14
T_7= *Magnesium carbonica*	1:1000	530	470	350	1350	+18.42
T_8= *Magnesium carbonica*	1:500	515	451	324	1290	+13.15
T_9= Control		502	421	217	1140	0
CD (5%)		42.483	41.047	25.176	113.820	-
SE(m)		14.3003	13.815	8.473	38.308	-
SE(d)		20.220	19.537	11.983	54.176	-
C.V		4.934	5.556	5.458	5.522	-

Table 5 : Effect of different homeopathic medicines on biological efficiency of *Pleurotus sajor-caju.*

Name of homeopathic medicines	Concentration	Weight of dry substrates used (in gm)	Total yield (in gm)	Biological efficiency (%)
T_1= *Arnica montana*	1:1000	1500	1140	76.00
T_2= *Arnica montana*	1:500	1500	948	63.20
T_3= *Arsenicum album*	1:1000	1500	1255	83.66
T_4= *Arsenicum album*	1:500	1500	1146	76.40
T_5= *Phosphorus*	1:1000	1500	1335	89.00
T_6= *Phosphorus*	1:500	1500	1210	80.66
T_7= *Magnesium carbonica*	1:1000	1500	1350	90.00
T_8= *Magnesium carbonica*	1:500	1500	1290	86.00
T_9= Control		1500	1140	76.00
CD (5%)		-	113.820	7.587
SE(m)		-	38.308	2.553
SE(d)		-	54.176	3.611
C.V		-	5.522	5.522

Table 6 : Effect of Homeopathic medicines on Fresh weight, dry weight and moisture content of *Pleurotus sajor-caju.*

Name of homeopathic medicines	Concentration	Fresh weight (gm)	Percentage increase over control	Dry weight (gm)	Percentage increase over control	Moisture (%)	Percentage increase over control
T_1= *Arnica montana*	1:1000	1140	+0	173.76	0	84.75	0.06
T_2= *Arnica montana*	1:500	948	-16.84	155.95	-9.93	83.54	1.27
T_3= *Arsenicum album*	1:1000	1255	+10.08	184.46	+6.52	85.30	0.49
T_4= *Arsenicum album*	1:500	1146	+0.52	174	+0.48	84.81	00
T_5= *Phosphorus*	1:1000	1335	+17.10	213.35	+23.20	84.01	0.80
T_6= *Phosphorus*	1:500	1210	+6.14	182.46	+5.37	84.92	0.11
T_7= *Magnesium carbonica*	1:1000	1350	+18.42	217.08	+25.36	83.92	0.89
T_8= *Magnesium carbonica*	1:500	1290	+13.15	202.65	+17.03	84.29	0.52
T_9= Control		1140	0	173.16	0	84.81	0
CD (5%)		113.820		17.507		-	
SE(m)		38.308		5.892		-	
SE(d)		54.176		8.333		-	
C.V		5.522		5.477		-	

References

Baldrian, P. (2008). Enzymes of saprotrophic basidiomycetes. *FEMS Microbiology Reviews*, **32**(3), 501–521.

Godse, D., Kumbhar, C., Jadhav, A., & Shitole, L. (2021). Effect of growth regulators and micronutrients on growth and yield of *Pleurotus sajor-caju*. *International Journal of Current Microbiology and Applied Sciences*, **10**(12), 240–250.

Gunde-Cimerman, N., & Cimerman, A. (1995). *Pleurotus* fruiting bodies contain the inhibitor of 3-hydroxy-3-methylglutaryl-coenzyme A reductase lovastatin. *Experimental mycology*, **19**(1), 1-6.

Khanna, K. K., & Chandra, S. (2016). Homeopathy in agriculture: A new perspective. *International Journal of Advanced Research*, **4**(5), 1224-1230.

Kumar, N., Biswas, S.K., Lal, K., Baboo, D. & Hussain, A. (2019). Integrated effect of different substrates on growth parameters and yield of *Pleurotus sajor caju*. *Journal of Mycopathology Research*, **57**(1), 35-40.

Kumar, R., & Sharma, P. (2021). Organic mushroom cultivation using homeopathic treatments: *A sustainable approach. Journal of Organic Farming*, **11**(3), 45-52.

Kumar, R., Hooda, K., Bhatt, J. C., & Kumar, R. (2011). Influence of chemicals on the growth and yield of five species of oyster mushroom (*Pleurotus* spp.) in North-western Himalayas. Indian Phytopathology, **64**(2), 178-181.

Mondal, S. R., Rehana, J., Noman, M.S., & Adhikary, S.K. (2010). Comparative study on growth and yield performance of oyster mushroom (*Pleurotus florida*) on different substrates. *Journal of the Bangladesh Agricultural University*, **8**(2), 213-220.

Pandey, R.K., Pandey, I. B., & Jha, S. (2008). Performance of oyster mushroom (*Plurotus sajor caju*) on different agricultural wastes. *Agricultura. StiinŇă. Si. practică*, **3**(4), 67-68.

Patel, N., & Desai, A. (2020). Enhancing mushroom yield through homeopathic interventions: A case study. *Mushroom Research*, **29**(1), 55-62.

Rathore, H., Prasad, S., & Sharma, S. (2017). Mushroom nutraceuticals for improved nutrition and health. *Current Nutrition & Food Science*, **13**(1), 5-23.

Sharma, S., Yadav, R. K. P., & Pokhrel, C. P. (2013). Growth and yield of oyster mushroom (*Pleurotus ostreatus*) on different substrates. Journal on New Biological Reports, **2**(1), 03-08.

Singh, V., Pandey, S., & Dubey, R. (2018). Homeopathic remedies against fungal pathogens in mushroom cultivation. *Journal of Fungal Biology*, **9**(4), 210-217.

Sukul, S., Mondal, S., & Sukul, N. C. (2012). Sepia 200cH at 1:1000 dilution ameliorates salt stress in cowpea seedlings but its medium 90% ethanol proves ineffective at the same dilution. *International Journal of High Dilution Research*, **11**(41), 237–246.

Wang, X. (2010). Effects of cotton seed hull supplementation on wheat substrate and mushroom yield. *Journal of Agricultural Science,* **5**(3), 123–130.

Yang, W., Guo, F., & Wan, Z. (2013). Yield and size of oyster mushroom grown on rice/wheat straw basal substrate supplemented with cotton seed hull. *Saudi journal of biological sciences*, **20**(4), 333-338.