iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** V **Month of publication:** May 2022

DOI: https://doi.org/10.22214/ijraset.2022.42809

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue V May 2022- Available at www.ijraset.com

Value Addition in Oyster Mushroom

Barshalin Das[1], Saswati Sahu[2], Priyadarsini Sahoo[3], Prof. Monali Madhusmita[4], Dr. Satyananda Swain[5]
[1, 2, 3]*UG Students,* [4, 5]*Department of Agricultural Engineering, Gandhi Institute for Technology (GIFT), Bhubaneswar, India*

Abstract: ***Oyster Mushroom has many nutritional effect, medicinal use and used as a functional food. It contains low calorie, high protein, dietary fibre, vitamins and minerals. It is very promising in its agribusiness trend, but has a constraint low shelf life. Mushroom value chain classified into input suppliers, producers prepared with mushroom like soup powder, pickles, chips, paste, ketchup, noodles, pasta, biscuits, traders, processors and consumers. In India value addition in mushroom represents approximately 7% which is lower than some developing countries. Many novel value-added products can be prepared with mushroom like powder, pickles, chips, ketchup, noodles, pasta, biscuits. The shelf life of mushroom can be extended by the preserving in the form of pickle. The main aim of the present study is the sensory analysis and storability of mushroom pickle by applying different technology. The product has been evaluated for sensory attributes like colour, aroma, taste, texture and overall acceptability. The growth of fungus and changes in appearance at different storage period were also evaluated.***
Keywords: Citric acid, Nutritional Evaluation, Pickle, Oyster Mushroom, Solar Drying

I. INTRODUCTION

A. Requirement of mushroom

Mushroom is a fleshy spore bearing fruiting body of fungus and very nutritious natural vegetable which contains high quality protein, vitamins and fiber. It is widely used as vegetables and also as a traditional medicine. Mushroom is highly perishable and starts deteriorating after a few hours depending upon the storage conditions. The shelf life of mushroom varies from 1-2 days at the ambient temperature due to its high moisture content, delicate texture and unique physiology. The shelf life of mushroom can be extended by converting in to value added products.

B. Benefits of mushroom for a good health

The value-added products not only reduces the post-harvest losses but also enhances the additional income to the mushroom growers and also provide nutraceutical low fat, protein rich food to the consumers. For increasing shelf life and also to increase the acceptability of the customer, mushroom is processed in the form of pickle. Pickle is a good appetizer consumed by all age of people which contain large amount of lactobacilli bacteria which are important for the digestion of grains and vegetables which have usual beneficial probiotic properties used by the body . For pickling proper concentration of salt is very important for better shelf life and also to reduce the infestation of mold, yeast and bacteria.

This is a limiting factor for mushroom marketing .Quality deterioration starts just after harvesting .Therefore, producer are not able to hold it as fresh for more days to market .Processing into value added products is one option producer can adopt to save the product from spoilage as well as to earn more money .Dehydration technology and value added products are the need of the hour for the mushroom growers not only to reduce the losses but also to enhance the income by value addition to boost the consumption of mushroom. Oyster mushroom is a common edible mushroom and is now grown commercially around the world for food. Oyster mushroom is used in sauces, pickle, etc. It is a popular type of mushroom linked to several health benefits.

II. LITERATURE REVIEW

GC Wakchaure , M Shirur , K Manikandan had collected the information regarding value-added products was undertaken from the fresh dried oyster mushroom. A good quality of crunchy oyster mushroom biscuits, comparable with commercially available biscuits in terms of appearance and taste were successfully prepared. Besides, pickle mushroom soup, mushroom jam and normal pakoda were successfully prepared from fresh oyster mushroom.

A Jahan , BK Singh had discussed about Mushroom are nutritious, medicinal and functional food. It contains low calories, high protein, dietary fiber, vitamins and minerals. It is very promising in its agribusiness trend, but has a constraint low shelf life. Mushroom value chain is classified into input suppliers, producers, traders, processors and consumers. Spawn suppliers played the major role in the distribution of inputs, collection and marketing of the produce.

©IJRASET: All Rights are Reserved

Sunita Kumara Kamal , Dilip Kumar Pandey had studied the effect of three value added products developed from oyster mushroom .The organoleptic quality of value added mushroom products were determined by score given for sensory characteristics such as colour , flavour, taste , texture and general acceptability of by selected panel member on three developed value added products. In acceptability test the equivalent score for general acceptability above 85% in three value added products that indicates the product.

III. METHODOLOGY

A. Objectives

Present work is having following goals:

1) To learn about various value-added products from Oyster Mushroom.
2) To study about pickling of Oyster Mushroom.
3) To conduct sensory evaluation of the prepared Oyster Mushroom pickle

B. Method of preparation Oyster Mushroom Pickle

Method of preparation Oyster mixed and mustard Mushroom Pickle

The fresh healthy oyster mushrooms were collected from market and other ingredients like spices, mustard oil, acetic acid and vinegar were collected from the local market.

The experiments conducted for a period of one year.

Observation was recorded at the end of every month for the period of 2 months and 2 months interval for the period upto 12 months in order to see any change in

colour, aroma, texture, and appearance of fungus. Method of collection of sample was shown.

Table no.1 Ingredients for mushroom mixed and mustard pickle

INGREDIENTS	PERCENTAGE
Oyster mushroom	500g
Ginger	25.0g
Garlic	25.0g
Salt	250g
Green chilly	20.0g
Vinegar	50ml
Cumin	5.0g
Coriander powder	10.0g
Turmeric powder	50.0g
Chilli powder	20.g
Carrot	250.0g
Lemon juice	25ml
Sugar	50.0g
Mustard oil	500ml

C. Preparation of Oyster Mixed and Mustard Mushroom Pickle

1) The recipe of the oyster mushroom pickle was given in the above table. We Selected the fresh oyster mushroom from market and washed thoroughly with tap water to remove dust and dirt.
2) Then removed stalk and according to desire shape and size. The mushrooms were fried in mustard oil and the spices are added and mixed it properly.
3) For storing pickle glass jar was sterilized at 100˚C and dried it properly. I Fig.5 Rear view tic acid was used and vinegar was used.
4) For making mushroom pickle mustard oil was heated and put all the ingredients, fried for few seconds and added the fried mushroom and dry for 4 to 5 minutes in low flame till it blended properly.
5) Salt and remaining oil were added. The fried mushroom pickle was cooled and filled into sterilized glass jar and sealed air tight.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

D. Flow chart of Oyster Mixed and Mustard Mushroom Pickle

Selected fresh and healthy oyster mushroom
↓
Removed stalk and washed to remove dust
↓
Cut into pieces
↓
Washed with cold water and strained water
↓
Fried spices in oil
↓
Add mushroom to fried spices
↓
Add salt and fried the mixture for about 10 minutes
↓
Cool and fill in sterilized glass jar
↓
Seal and store in cool dry place

E. Diagrammatic of Mushroom Pickle



Fig no. 1. Oyster mixed and mushroom pickle

F. Sensory Analysis

Sensory analysis is the identification, scientific measurement, analysis an interpretation of the properties of a product, as they are perceived through the five senses of sight, smell, taste, touch and flavour.

The sensory properties of food are extremely important in addition to chemical and microbiological parameters, because these properties determine consume acceptance. This is why sensory tests are essential in terms of quality.

G. Hedonic Scale

A standard, bipolar, nine-point hedonic-type scale was used for testing acceptability of the pickle products. During evaluation, consumers were asked to taste the product and then indicate how much it was liked or disliked on a scale ranging from dislike extremely to like extremely. The responses were converted to numbers for data analysis,with dislike extremely=1,dislike strongly=2, dislike moderately =3, dislike slightly = 4, neither like nor dislike =5, like slightly =6, …… like extremely = 9. Each treatment was coded with a random three- digit number. All possible serving sequences for each experiment were balanced across consumers. Analysis of variance was used to determine statistically significant difference using Minitab software.

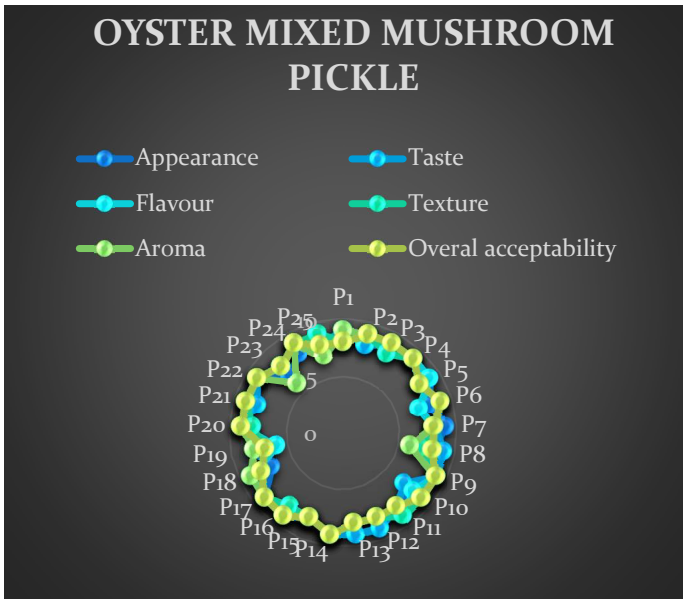


Fig no.2 Sensory analysis for Oyster mixed Mushroom Pickle

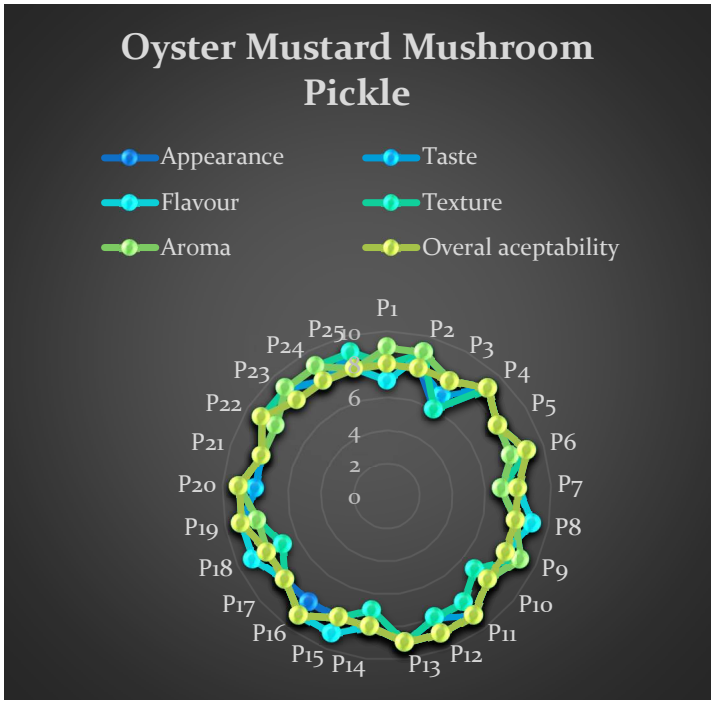


Fig no 3. Sensory analysis for oyster mustard mushroom pickle

IV. RESULT AND DISCUSSION

Statistical Analysis During the experiment, the mean values generated from sensory analysis were subjected to statistical analysis using ANOVA. The significance of each parameters influence on are specific attribute was calculated at 5%($P<0.05$) significant level.

A. Statistical Analysis Of Sensory Analysis Of Oyster Mixed Mushroom Pickle Using Minitab Software

1) Statistical Analysis For Apperance

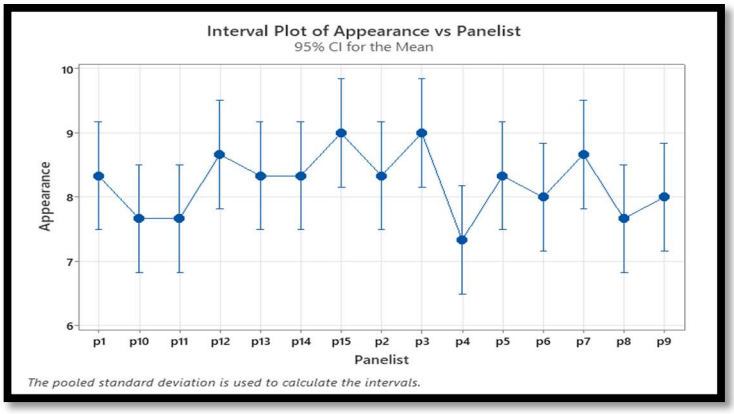


Fig 4.1.1 Statistical Analysis for Taste for mixed pickle

2) Statistical Analysis For Taste

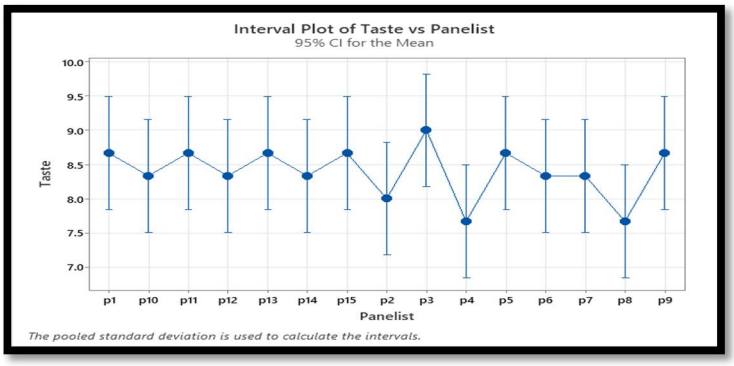


Fig .4.1.2 Statistical Analysis for Taste for mixed pickle

3) Statistical Analysis For Flavour

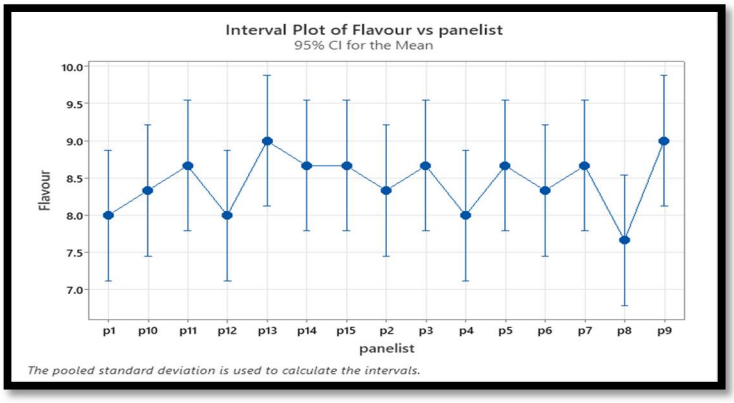


Fig.4.1.3 Statistical analysis for flavour for mixed pickle

4) Statistical Analysis For Textur

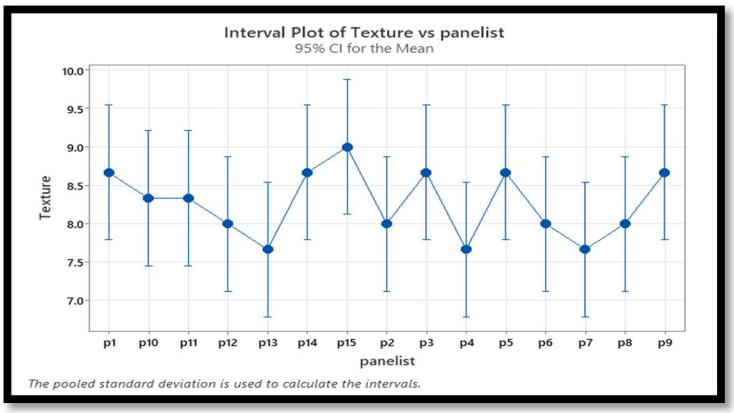
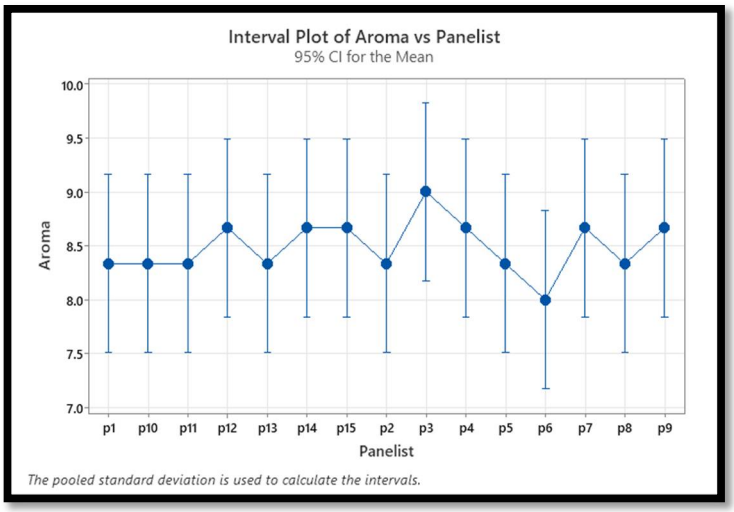


Fig4.1.4 Statistical Analysis for textur for mixed pickle

5) Stastitical Analysis For Aroma



6) Statistical Analysis For Overall Acceptibility

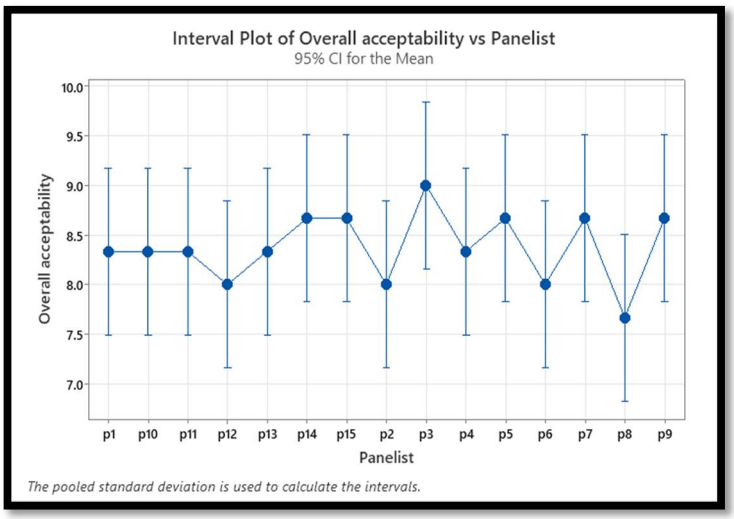


Fig 4.1.6 Statistical analysis for overall acceptability for mixed pickle

B. Stastistical Analysis Of Sensory Analysis Of Oyster Mustard Mushroom Pickle Using Minitab Software

1) Stastistical Analysis For Apperance

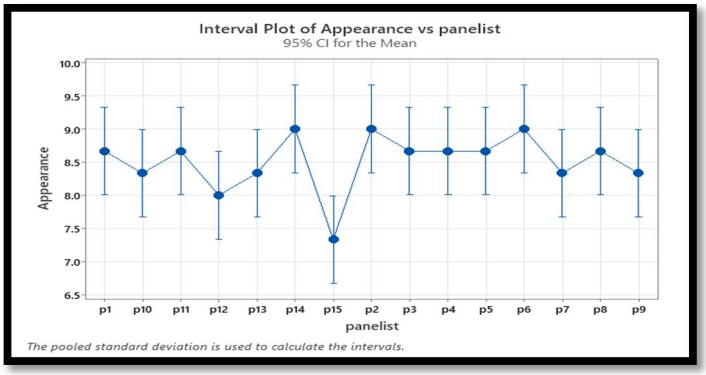


Fig 4.2.1 Statistical Analysis for Apperance for mustard pickle

2) Stastistical Analysis For Taste

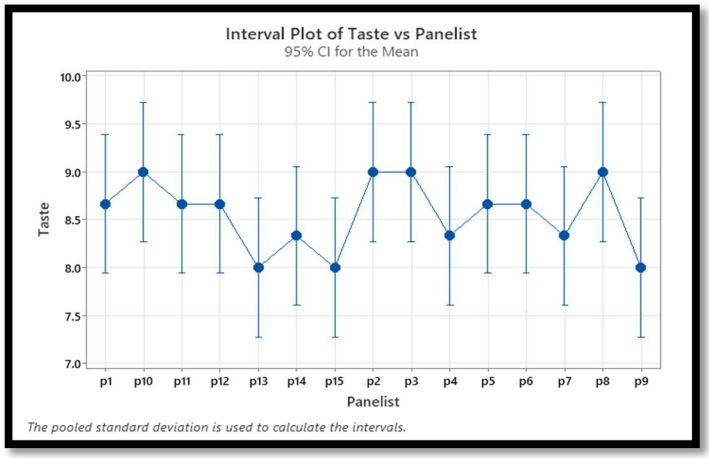


Fig 4.2.2 Statistical Analysis for Taste for mustard pickle

3) Stastistical Analysis For Flavour

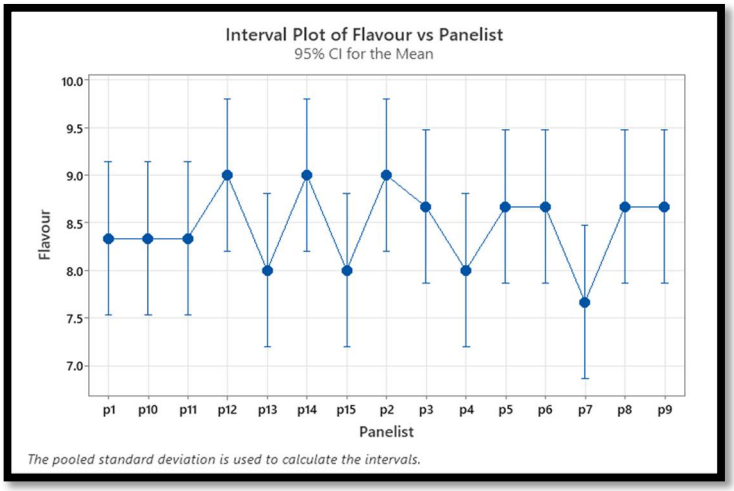


Fig 4.2.3 Statistical analysis for flavour for mustard pickle

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

4) Stastistical Analysis For Texture

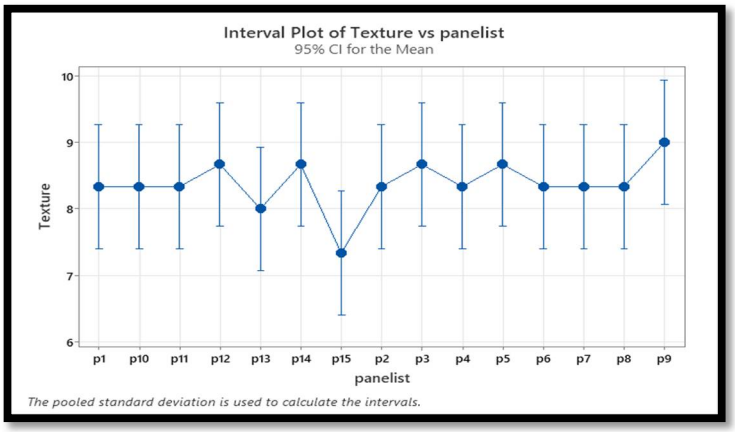


Fig 4.2.4 Statistical analysis for texture for mustard pickle

5) Stastistical Analysis For Aroma

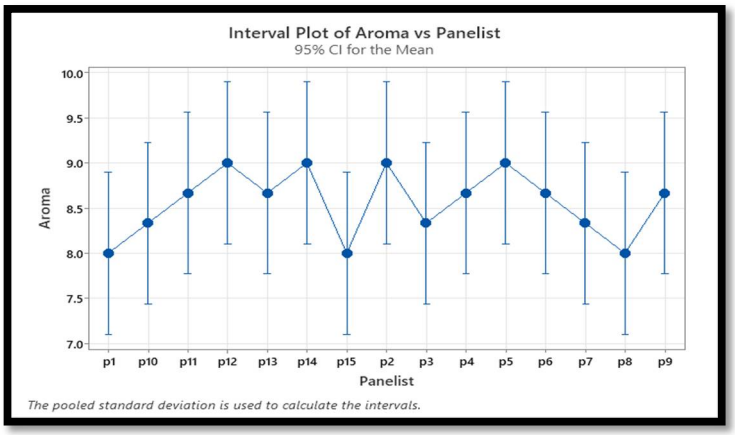


Fig 4.2.5 Statistical analysis for aroma for mustard pickle

6) Stastistical Analysis For Overall Acceptability

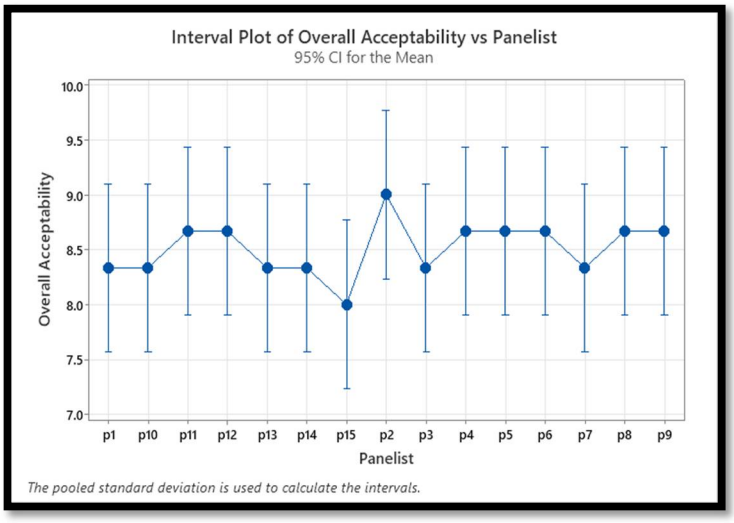


Fig 4.2.6 Statistical analysis for Overall Acceptability for mustard pickle

V. CONCLUSION

Mushroom is highly perishable in nature. So, proper preservatives like salt, mustard oil, acetic acid and citric acid added during pickling act as natural preservatives for increasing the shelf life.The panelists also sensorially evaluated the product and gave the score for colour, aroma, and texture, taste and overall acceptability.The pickle product has been statistically evaluated for colour, flavour, taste, texture, and overall acceptability and found to be significant at 95%CIThe storability of the pickles in room temperature is also studied for 6months.

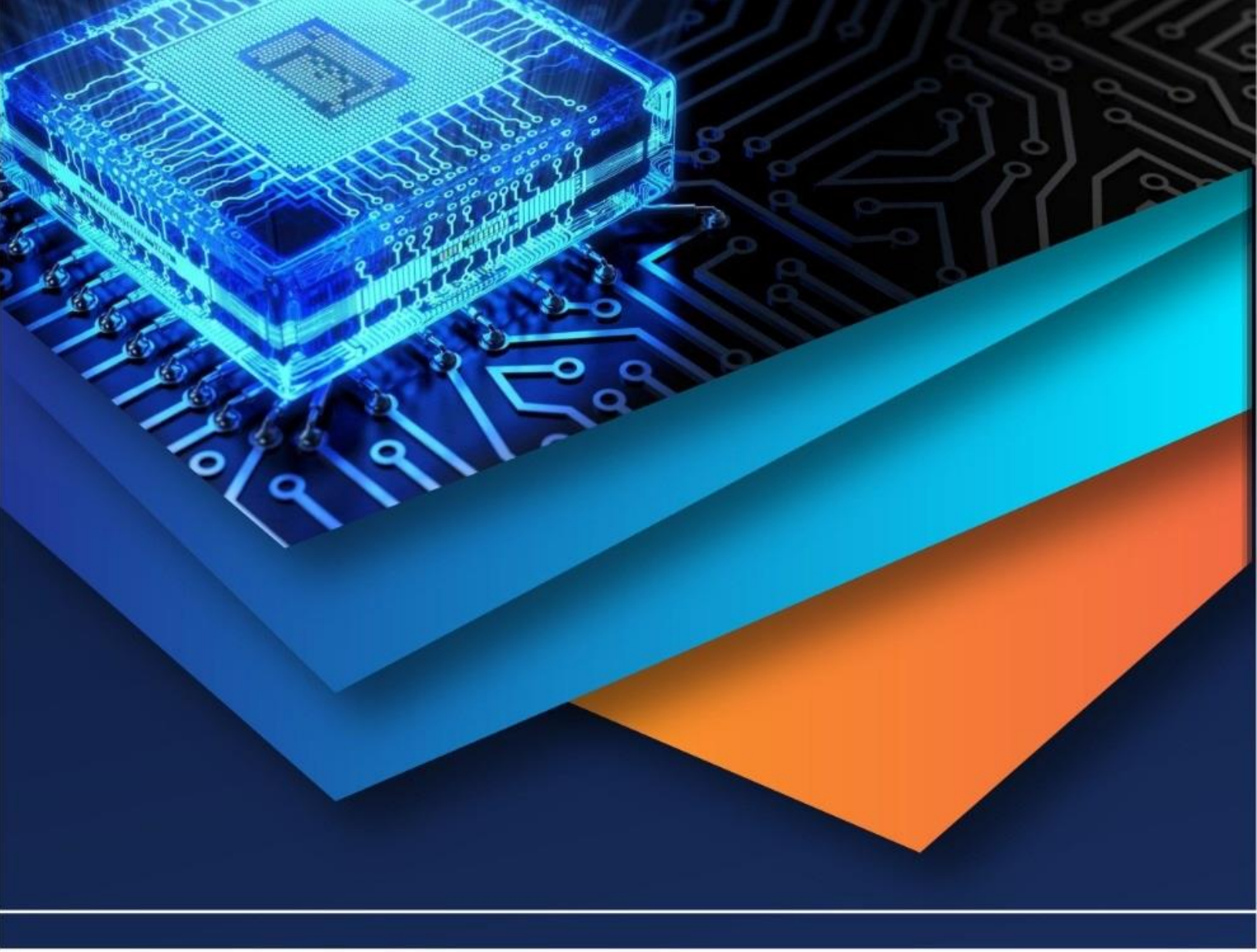
VI. ACKNOWLEDGMENT

We are exceptionally grateful to our guides Prof. Monali Madhusmita and our HOD Dr. Satyananda Swain for their support and guidance .We feel earnest and thankful for the steady help and guidance given by them .We are likewise appreciative to our Principal Dr. Ch V S Parameswara Rao as well as for their motivation and support without which it would have been challenging as for as we are concerned to finish task.

REFERENCES

[1] Arumuganathan, T, R.D. Rai and A.K. Hemakar (2005) 'Studies on development of value added products from fresh button mushroom Agaricus bisporus'. Mushroom Research 14(2).
[2] Goel, A. K., Kumar, R. and Mann, S. S. (2007). Postharvest Management and Value Addition. Daya Publishing House, Trinagar, New Delhi - 110 035.
[3] Girdhari, L. and Siddapa, G. S. (2010) Chutney, sauce, pickle, preservation of fruits and vegetables. ICAR Publications, New Delhi
[4] Rajablou et at. (2012) Make pickles probiotic with using strain Lactobacillus plantanum native. Journal of Food Technology and Nutrition. 9(2).
[5] Rodrigo, M and Alvarruiz, A (2010) The influence of fermentation and pasteurization on the texture of cucumber pickle. Journal of Food Engineering, 7(2)
[6] Sadeghizadeh, Yazdi. J., Behradkia, V., Hozoori, M. (2018) 'Evaluation of sensorial, chemical and microbial characteristic of pickled cucumber supplied in Shiraz'. Journal of Nutrition and Food Security, 3 (2).
[7] Sangeeta. A., Pingale and Vaibhav, R., Dabhade. (2015) 'Development and sensory attributes of the pickle made from Bitter gourd and Bottle gourd'. Int J Sci Res, Vol (4) Issue 10
[8] Saxena, S and R.D. Rai (1990). 'Post Harvest Technology of Mushroom'. Technical Bulletin No.2. NRCM, Solan, India.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)