

Incorporation of Dehydrated Basil Leaves & Oregano Leaves in to Traditional Snack "Chegodi"

J. Saritha¹ and Srinivas Maloo²

^{1,2}University college of Technology, Osmania University, Hyderabad
E-mail: ¹saritha_jukuri@yahoo.co.in, ²snmaloo1@yahoo.com

Abstract—Chegodi (Deep fried snack) with the incorporation of Dehydrated Herbs (Basil & oregano leaves) was developed with optimum frying conditions (temperature :160 ° C & Time : 3 Min. 30sec) & stored under cryogenic conditions (modified atmospheric pack) was evaluated by chemical parameters at monthly interval for a period of 6 months. % FFA (as oleic acid) & Peroxide value(PV) increased during storage period increases. The colour, appearance, taste, texture and overall acceptability of Herbal chegodi found good still 6 months storage period. Chegodi made with 0.5% Basil & 0.2% Oregano leaves found good even in 5 months storage period with 0.48 % FFA & 9.77% PV when compared to Indian standards of Deep fried snack IS 15271:2003.

Keywords: Herbal snack (basil & oregano), optimum frying, chemical constituents, Organoleptic, storage

1. INTRODUCTION

The food market place has become more dynamic, productive and competitive and large number of Snack food (deep fried) preparation, based on time tested recipe's are now being marketed and gaining acceptance. These include a wide variety of deep fried snack food such as potato chips. There is an increasing awareness amongst the consuming public regarding the quality of foods available in the market in order to meet the consumers expectations regarding standards from a safety point of view. It is necessary for the regulatory authorities to evolve quality standards for the deep fried snack foods. Scanty information is available pertaining to the snacks prepared with incorporation of natural dehydrated herbs such as Basil & oregano, present study is undertaken to the acceptability of the product prepared by using different combinations of herbs.

Recently Ghanta foods Pvt. Ltd., (Bambino group) has developed the Herbal soup powders those are Tomato Herbal Soup & Drumstick Herbal soup powders with the Incorporation of Dehydrated Basil leaves & Dehydrated Drumstick leaf powder Presently available in the market, herbs are beneficial for human health as it contains significant amount of micronutrients, vitamins, antioxidants,

phytochemicals and fiber content that may help protect against degenerative diseases and micronutrient malnutrition. Many valuable medicinal herbs are becoming rare and precious information regarding their health benefits is lost. Therefore, substitution of herbs in the preparation of Chegodi will increase the nutrition value and also provide health benefits to consumers. The purpose of this study was to produce ready-to-eat snack by incorporating edible dried herbs (Basil & oregano), along with a view to determine the overall acceptability. Oxidative rancidity is the major problem in fried foods and also a major cause of food deterioration, the sensory parameters such as colour, flavour, texture, and taste and overall acceptability of any product depend on the extent of oxidation of fats and oils in the food. Due to the formation of peroxides, aldehydes and ketones. There are several chemical tests to estimate the rancidity of extracted fat from the foods such as Acid value, peroxide value, each test is based on the oxidative by product formed during the process of oxidation. The measure of free fatty acids present in the oxidized fat is the *acid value* the basis of *peroxide value* is the estimation of peroxides (primary oxidation product)

2. MATERIALS AND METHODS

Materials

Refined wheat flour, rice flour, Refined palmolein oil, salt, red chilli powder, black pepper crushed, ajowan, cumin, white till, compounded asafoetida, dry ginger powder, turmeric powder, dehydrated Basil leaves & Dehydrated Oregano leaves

Equipments

Deep fryer, Thermometer, Hand extruder (for Chegodi making), Analytical balance, Hot air oven (for moisture testing), Soxhlet apparatus (for Fat extraction), Burette, conical flasks, Chemical reagents for % FFA & Peroxide value tests

Methods

All the materials were sourced from local super market & prepared the Chegodi (control) without Herbs & With incorporation of Herbs basil & oregano. Prepare the dough with boiling potable water, knead the dough thoroughly & make the chegodi's, fried under optimum conditions (At temperature :160 ° C & Time : 3 Min. 30sec) in refined palmolein oil & studied the shelf life when stored in Modified atmospheric packs (Cryogenic conditions)

By Chemical analysis:(% FFA) (as Oleic acid) (AOCS 1993 method) and Peroxide value (AOCS 1993 method)

By Organoleptic evaluation: In formulations and evaluation of products sensory evaluation, provide a measure of quality, which cannot be obtained by other measures. West et al (1966) considered quality factors like appearance, Colour, texture, flavour, palatability as important factors in sensory evaluation. Amerine et al (1965) consider age, sex, smoking, nutritional health of the individual as factors effecting sensitivity

3. RESULTS &DISCUSSION

Incorporation of dehydrated herbs Basil & Oregano leaves into chegodi at proportions of (0.5% basil leaves& 0.2% Oreganoleaves (Trial I), (0.6% basil leaves& 0.35% Oreganoleaves (Trial II)& (0.35% basil leaves& 0.6% Oreganoleaves (Trial III), along with the control sample, were studied for the shelf life by estimating the following parameters % FFA (as oleic acid) & Peroxide value for the period of 180 days)(6 months) and also sensory evaluation conducted by 30 members .

As per the organoleptic evaluation in terms Taste almost 70% of the people preferred Trial I when compared tp control & 10% people preferred Trial II & 20% people preferred Trial III, Texture& other parameters almost similar in all three trials.,

% FFA & Peroxide value been increased during the shelf life increases & rate of increase is slow in Trial I than Trial II &III all the results were correlated with IS 15271:2003 STANDARD

Table 2. Peroxide value Results for the product packed in Modified atmospheric packs

Sl. No	Sample Codes	Peroxide Value (Meq/kg)						
		0 day	30 days	60 days	90 days	120 days	150 days	180 days
1	Control	1.407	2.12	4.2	6.8	7.8	9.8	10.15
2	Trial I	2.25	1.72	5.6	6.3	7.5	9.77	10.53
3	Trial II	2.2	1.8	6.2	7.05	9.14	10.8	11.62
4	Trial III	1.75	1.83	6.3	6.4	6.3	11.11	11.9

Table 3. Organoleptic preference

Sl.No	Samples packed MAP packs	Preference
1	Control	100
2	Trial I	70
3	Trial II	10
4	Trial III	20

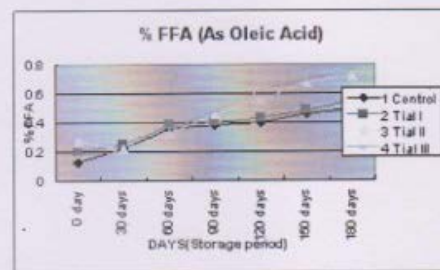


Figure .1 .% FFA Graph

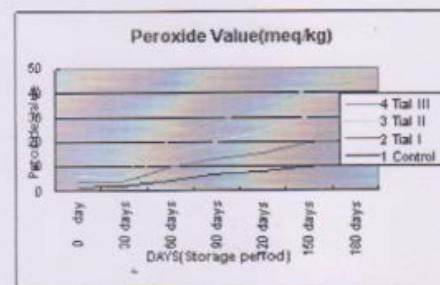


Figure .2. Peroxide Value Graph

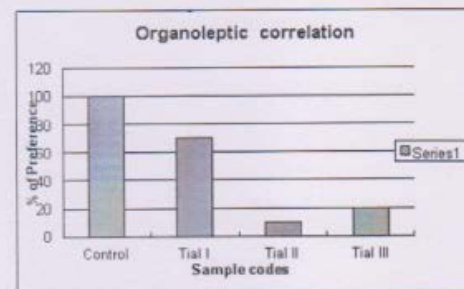


Figure 3. Organoleptic Preference Chart

Table 1. % FFA Results for the product packed in Modified atmospheric packs

Sl. No	Sample Codes	%FFA (as oleic acid)						
		0 day	30 days	60 days	90 days	120 days	150 days	180 days
1	Control	0.13	0.22	0.36	0.38	0.4	0.46	0.49
2	Trial I	0.2	0.25	0.38	0.4	0.43	0.48	0.55
3	Trial II	0.27	0.22	0.32	0.46	0.55	0.68	0.72
4	Trial III	0.18	0.2	0.35	0.48	0.62	0.7	0.76

Product Images



4. SUMMARY & CONCLUSION

Incorporation of dehydrated herbs Basil & Oregano leaves into chegodi at proportion of (0.5% basil leaves & 0.2% Oregano leaves (Trial I) is good in acceptability in sensory as well as chemical parameters at the storage period of 5 Months when stored in modified atmospheric packs (Cryogenic conditions), In normal storage conditions it can be stored only up to 15 days as per IS Standard : IS 15271: 2003

Optimum frying conditions for Herbal Chegodi are : At 160°C, for 3 minutes 30 Sec of frying will maintain good texture, taste & appearance of product.

REFERENCES

- [1] Utilization of Dehydrated Herbs in the Formulation of Value Added Snack "Rice Flakes Mix" - Ena Gupta^{1*}, Jyoti Sinha¹ and Ritu P. Dubey²,
1Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, India
2Sr. Assistant Professor, Department of Foods and Nutrition, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, India
- [2] Suitability of Using Herbs as Functional Ingredients in Thai Commercial Snacks-Wiwat Wangcharoen¹, Tipvanna Ngarmrak¹ and Brian H. Wilkinson²
- [3] Transient mass and heat transfer during potato deep fat frying- The effect of the oil type, frying load and initial frying temperature -John S. Lioumbas, Margaritis Kostoglou, Thodoris D. Karapantsios* School of Chemistry, Department of Chemical Technology & Industrial Chemistry, Aristotle University of Thessaloniki, University Box 116, 541 24 Thessaloniki, Greece
- [4] Heat transfer coefficients of a deep fat fryer-Watid Cheevasathianchaiporn and Chairath Tangduangdee*- Department of Food Engineering, Faculty of Engineering, King Mongkut's University of Technology-Thonburi, Bangkok 10140 Thailand-As. J. Food Ag-Ind. 2009, 2(04), 240-248
- [5] Quality evaluation of deep fried chips produced from lotus rhizome-1Wipawee Yodkraisri and 2Rajeev Bhat-International Food Research Journal 19(4): 1423-1427 (2012)
- [6] Effect of drying and frying time on textural and sensory characteristics of popped rice -As. J. Food Ag-Ind. 2010, 3(04), 368-372-ISSN 1906-3040
- [7] Effect of drying methods on nutrient quality of Basil (*Ocimum viride*) leaves cultivated in Ghana-Eric Danso-Boateng-International Food Research Journal 20(4): 1569-1573 (2013)
- [8] Effect of frying media and packaging materials on shelf life of tengolalu-a deep fat fried snack -1Wudpecker Journal of Food Technology 2013 Wudpecker Journals-Vol. 1(3), pp. 034 - 047, May 2013-Anil babu¹, N.S Vijayalakshmi¹, B.S Roopa², V. Vishalakshi¹, A.G Gopalakrishna³, K.Srinivasulu¹ and A.R Indiramma^{1*}
- [9] Padmaja R. Jonnala Gadda; Ramesh V. Bhat, R.V. Sudershan, A. Nadamuni Naidu, 2001. Suitability of chemical parameters in setting quality standards for deep fried snacks, food quality and preference 12, 223-228
- [10] Vijaya Khader and Geetha H. Patel (1982). Chemical analysis of deep flat fried snacks Cheuda and Ganthia) commonly consumed in Gujarat, Indian journal of nutrition and dietetics 19, 87-95
- [11] Natarajan Murthy. T; Rao, J.K.M, Rathi. L.S. and Lakshminarayana. G, (1980). Shelf life of Ready to eat fried noodles, Journal of Food science and technology. Vol. 17, pp. 281-282.
- [12] L.M. Smith, A.J. Clifford, R.K. Creveling and C.L. Hamblin (1985). Lipid content and fatty acid profiles of various deep fat fried foods. JAOCS, Vol.62, No. 6.

-
- [13] P. Pangloli, S.L. Melton, J.L. Collins, M.P. Penfield, and A.M. Saxton (2000), Flavor and storage stability of potato chips fried in cottonseed and sunflower oil (2000) presented at IFT annual meeting.
- [14] Development of active modified atmosphere packaging systems for traditional Thai fried banana snacks- *As. J. Food Ag-Ind.* 2012, 5(04), 292-298(ISSN 1906-3040)-Nipawan Siritwong, Oranuch Wangabklang and Weerawate Utto*, Department of Agro-Industry, Faculty of Agriculture, Ubon Ratchathani University, Ubon 34190 Thailand
- [15] Optimum deep-frying-Recommendations by the German Society for Fat Science (DGF, Deutsche Gesellschaft für Fettwissenschaft e.V.)wDeutsche Gesellschaft für Fettwissenschaft e.V. (DGF) Postfach 90 04 4060444 Frankfurt/Main Germany