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Studies on Pineapple Pomace and Its Qualities

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Abstract*—Pineapple has a great utility for healthy life of human beings. In export oriented fruit utilization its product has been found remunerative. Pomace content in pineapple has a quality and quantity for fibre production. Physico-chemical quality was found useful in analysis factors. Quality parameters were found in variable quantity content. These were found as protein, fat, carbohydrates, pH, acidity etc. in fruits and pomace of pineapple. Pineapple fibre is an important byproduct which has considerable useful quality in dietary system of human being.*

***Keywords*—** *Pineapple, fibre, pomace, quality, parameters*.

I. INTRODUCTION

Pineapple (*Annanas comosus*) has a great importance for health benefits in modern lifestyle in India (Singh, 2005). Production of fruit products including pineapple has been increased tremendously in entrepreneurial venture in world wide marketing. The utilization of fruits and its value added products increasingly getting an impact in modern civilization. Fruit products are also gaining an important top position because of jack foods are creating harmful and hazards effects in health systems of adults in general and particular in children. (Gomez and Aguilera, 1981; Mereter and Filler, 1975).

Pineapple pomace is disposed off in different places-like certain corners, crossings, markets etc. and which usually become a cause of certain diseases in the society and its rotting has been found creating pollution in the environment (Dehghan *et al.* 2010). In fact its reuse as byproducts with value addition can be beneficial to produce fiber being because pineapple fibre is insoluble which acts as bulking item in intestine. It has been reported as an useful factor in digestion of diet (Parkonfan *et al.,* 2002). In real sense it also creates motility. Pineapple fibre is one of the valuable sources of dietary fibre which can be used as an important ingredient of food products. Selani *et al.* (2014) emphasized to use its byproduct ingredients in extruction processing. The pineapple pomace is a six sources and is potential for industrial products. Therefore processing experiments on pineapple were carried out at State Institute of Food Processing and Technology, Directorate of Horticulture and Processing, Lucknow during the year 2015-16.

II. MATERIAL AND METHODS

Mature pineapple fruits were purchased in 4 lots from local fruit market during octalic - November 2015-16. Fruits were washed and processed at State Institute of Food Processing and Technology, Directorate of Horticulture and Processing, Lucknow for pomace investigations. Fruits were santized with 200 ppm of Sodium hypochlority and rinsed with water and cut by hand in small pieces with peel. The pieces were introduced in juice extract (Speed Trell, sterling electric Inc. irvine C.S.A.U.) where the juice was collected for pineapple pomace Peel and Pomace was freeze-dried under vacuum condition and ground by using a knife well and it was passed through 40-mesh stainless steel sieve and stored into sealed plastic containers at 20^0C for further analysis. The particles sizes of these samples were determined in triplicate by last diffraction in a Malvein Masterisizer 3000 by using the dry dispersion method with a reflective index of 1.53 at pressure of 4-bar and 4 sample. This was determined as per method A.O.A.C. 940-26 (2000) by using Thermolyne 30400 Furnace and moisture was determined by using a Vacuum Thermolyne oven series 9000 following AOAC 96052 (2000). After that soluble and insoluble dietary fibres were determined as per method of AOAC 96052 (2000). Protein was calculated from the nitrogen content by the Dumas combination method by using conversion factor of 6.25 and fat was determined by the saxtec method, both according to the manufactured intuitions. Carbohydrate content was assessed by the method of difference. Analysis experimental data was recorded in three replications.

25 gm sample was diluted in 225 ml of phosphate sterile buffered peptone water to achieve the 1.10 dilution which were blended by using a slomacher for 1 minute. Further different dilutions in sample form were prepared. Plate counts were determined on APC Petrifilm plates. Molds and yeasts counts were determined on dichlora. Rose Bewngal Chloramfhenicol agar including at 25^0C for 3 days in three replications.

Corn flour was replaced by Pineapple pomace on the basis at levels of 21% and 10.5%. After that these different levels were selected to deliver 10% for obtaining fibre and 5 per cent of the recommended daily value for dietary fibre about 25g daily. After mixing, samples were stored over night for proper homogeneneous moisture distribution. When extrusion parameters response well in stable stage, then they were collected and samples were dried at 100^0C for 10 minutes. In statistical design data were studied for calculation and comparison among the means. The done results have the significant differences. After calculation results were summarized in table (I-III).

III. RESULTS AND DISCUSSION:

Data were presented in tables I-III revealed variation in analysis. It was found that particles were found to range from 47.85 $\pm$ 2.11 to 99.61 $\pm$ 0.37 size percentage of undersize particles. Size range was also there 221 mm to 111.8 mm, respectively. Freeze dried pomace revealed a considerable

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range of variation in pineapple pomace under chemical composition in variable range, which was apparent in samples. Chemical composition of different parameters i.e. Moisture, protein, fat and Ash was recorded 341 ± 0.52, 4.65 ± 0.24; 0.62 ± 0.70 and 2.21 ± 0.59 percent, respectively. Alfan *et al.* (2008) and Alverage (1988) also reported the similar results in their estimations of certain factors as were recorded by Carcea (1986) in functional properties of chickpea who observed the similar findings in his investigations. Kuntz (1994), Parkongfon *et al.* (2002) also reported the extraction and application of fibre in respect of diets. Pineapple fibre was proved as useful for dietary system in human beings. In diets roughage has been treated essential for normal digestion.

TABLE I. Particle size of freeze dried pineapple momace.

S.No.	Size µm	% of undersize particles
1.	221	47.85 ± 2.11
2.	454	88.18 ± 0.24
3.	658	97.08 ± 0.50
4.	876	99.04 ± 0.34
5.	1115	99.61 ± 0.37

TABLE II. Chemical composition of freeze-dried pineapple momace.

S.No.	Component	Percentage (% Dry basis)
1.	Moisture	3.41 ± 0.52
2.	Protein	4.65 ± 0.24
3.	Fat	0.62 ± 0.70
4.	Ash	2.21 ± 0.59
5.	Total dietary Fiber	44.38 ± 3.61
6.	Insoluble dietary Fiber	43.46 ± 3.55
7.	Soluble dietary Fiber	0.62 ± 0.09
8.	Carbohydrates	42.85

TABLE III. Physico-chemical composition and functional properties of freeze dried pineapple pomase.

S.No.	Component	Percentage (% Dry basis)
1.	pH	3.85 ± 0.09
2.	Titrable acidity (% ascetics acid	2.00 ± 0.19
3.	Aw	0.12 ± 0.05
	Colour	
4.	1	76.15 ± 3.05
5.	9	0.10 ± 1.64
6.	5	25.87 ± 2.31

Determination of physico-chemical composition and functional properties of freeze dried pomace of pineapple showed valuable results (Table III). Data revealed that pH content was found 3.85 ± 0.09 titrable acidity was recorded 2.00 ± 0.19. Other contents also revealed outstanding results in the analysis of pomace. In fact the quality parameters of fibre of pineapple have a potential and important scope for industrial products.

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