

Optimization of Ready-To-Drink Beverage and Ready-To-Reconstitute Mix of Ginger Based Appetizer

S Elizabeth Amudhini Stephen, Emilin Renita, George Samuel Raj V, Basil Joseph

Abstract: *Ginger is outstanding for its therapeutic property and curd is expended for its probiotics properties. Utilizing these two fixings a hors d'oeuvre drink has been created and this item is advanced utilizing Response Surface Methodology. It gives 77 kCal per serving of 100ml when the hors d'oeuvre blends with virus water. For making dry starter crisp curd is supplanted by curd powder. The item as a rule has a timeframe of realistic usability of a half year in encompassing condition. Utilizing the Response surface approach advancement of this canapé demonstrates a most extreme causticity score of 2.38 % for ginger powder (2g-4g) , asafetida powder (200g - 500g) , salt (1g-2g) utilizing RSM(Box-Benhken strategy). In a comparable report, the worthiness score of the beverage is 7.0 to 7.8 utilizing Overall agreeableness score.*

Keywords: *Optimization, Response Surface Methodology, appetizer drink, acceptability score.*

I. INTRODUCTION

Appetite is one of the major factors in deciding the food intake of a person. The biological or environmental conditions can sometimes lead to reduction of food consuming. The components like gingerol and shaogol (pungent compounds) are well known for anti-emetic and appetizing properties (Kawai *et al.* 1994, Wadikar *et al.* 2010). The digestion probiotics of curd is immersive as the probiotics but the formation and quality of curd will not be uniform throughout the year in cold regions. The lack of appetite is one of the major problems they face. So keeping in view of appetite stimulation of ginger, an appetizer drink has been developed in the form of dry powders for easy transportation to remote areas. Ginger containing curd (Takahashi Yok 1990), stimulating appetite and digestion health beverage having 12 medicinal components including ginger (Wu 2002), honey-ginger beverage (Yanzhong 2003) and a fermented health beverage which is a mix of milk and corn (Yue-Chun *et al.* 2002). The present studies describe the optimization process RTR (ready to reconstitute). Optimizing the Phenolic and anthocyanin extraction of purple sweet potato flour was carried out by RSM method (Elizabeth Amudhini Stephen et al 2019)., Optimization using response surface methodology on Soy - cakes by infrared microwave

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S Elizabeth Amudhini Stephen¹Department of Mathematics, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu,

Emilin Renita Department of Food Processing and Engineering, Karunya Institute of Technology and Sciences, Coimbatore

George Samuel Raj V Department of Mechanical Engineering, Karunya Institute of Technology and Sciences, Coimbatore

Basil Joseph, Department of Food Processing and Engineering, Karunya Institute of Technology and Sciences, Coimbatore

combination (Elizabeth Amudhini Stephen et al 2019).
Optimizing food materials for development of nutritious pasta was done using RSM method

1. MATERIALS AND METHODS:

1.1. RAW MATERIALS:

The sugar, salt, citric acid, ginger powder, asafoetida were collected from local market in

Coimbatore. All chemicals were bought from M/S sd fine chemicals (Mumbai, India).

1.2. PROCESSING OF CURD POWDER:

Milk of good quality seeded with (2%) curd and kept in room temperature of 18-33° for 6 h with 10% consolidation of sugar and experienced stop drying (Hull Corporation, Hatboro, Pennsylvania, USA) by solidifying to - 30 ± 2 ° for 2-3 hrs in plate made of treated steel and dried under 100-300 μ utilizing variable plate temperature of 35-70° for 18 hr to get a free-streaming powder with dampness content under 2%. Dehumidified bundling was done in a room.

1.3. PROCESSING CURRY LEAVES:

Curry leaves are isolated from the branch, washed and experienced whiten preparing in water containing magnesium oxide (0.1%), salt(1%) for 3 min and sodium meta-bisulphate (0.1%) and got dried out in a cross-stream drier for 3h to diminish dampness substance to under 5%. The dried curry leaves are powdered

1.4. PROCESSING OF APPETIZER DRINK:

Starter drink was handled through aseptic preparing. Milk was purified and chilled off to 44°C and blended well with 2% curd. This was kept hatched for 4 hr to arrive at 4.1 pH, blended with 0.2% gelatin and homogenized. The zest blend was included with appropriately weakened curd at 95°C for 30 sec (HTST Treatment) and pressed in 200ml tetra packs aseptically.

II. DESIGN OF EXPERIMENT:

The surface response methodology is used for defining the acidity score of Ginger Based Appetizer. The independent variables used are ginger powder (A), asafoetida powder, salt. The response is made with Box – Benhken method is tabulated in Table.1. The results were interpreted with the help of 12 runs. The dependent variable (Y) used is acidity score (Y₁).

Table. 1 worksheet of box Benhken experimental design

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Std	Run	Factor 1 A: ginger pow... g	Factor 2 B:asafoetida po... g	Factor 3 C:salt g	Response 1 acidity score %
3	1	2	500	1.5	2.27
11	2	3	200	2	1.96
10	3	3	500	1	2.38
7	4	2	350	2	1.6
8	5	4	350	2	2.06
2	6	4	200	1.5	2.19
9	7	3	200	1	1.94
12	8	3	500	2	1.85
4	9	4	500	1.5	2
1	10	2	200	1.5	2.06
5	11	2	350	1	1.79
6	12	4	350	1	2.24

2. RESULTS AND DISCUSSIONS:

2.1. STATISTICAL ANALYSIS:

To establish predictive models from the experimental data for each response variable were shown in the following equation.

$$\text{Acidity score } (Y_1) = 0.327500 + 0.322083 X_1 + 0.005042 X_2 + 0.40667 X_3 - 0.000667 X_1 X_2 + 0.005000 X_1 X_3 - 0.001833 X_2 X_3$$

Where X_1 , X_2 , X_3 are ginger powder, asafoetida powder and salt respectively.

2.2. EFFECT OF GINGER POWDER, ASAFOETIDA POWDER AND SALT ON ACIDITY SCORE:

pH is the proportion of corrosiveness and if the pH is over 7 it is basic in nature else it acidic or nonpartisan. The corrosiveness of the reconstituted drink is likewise influenced by the degree of salt. In this way, the improved creation of the blend had 3g ginger powder; 1.5g salt and 350g asafoetida while different fixings present in the enhanced item are curd powder, sugar powder, curry leaves powder and citrus extract. The capacity investigations of tantalizing blend uncovered that the causticity is 2.02833%. Comparative work was led by Wadikar et al. (2008) on the increments of corrosiveness for three tidbit blends on capacity. Hence, it very well may be inferred that ginger based canapé can be utilized as RTR dry blend and as RTD drink due to its a half year time span of usability at encompassing temperature. Sharpness score increments with increment in the measure of asafoetida powder characterizes in the fig (1,2,3,4).

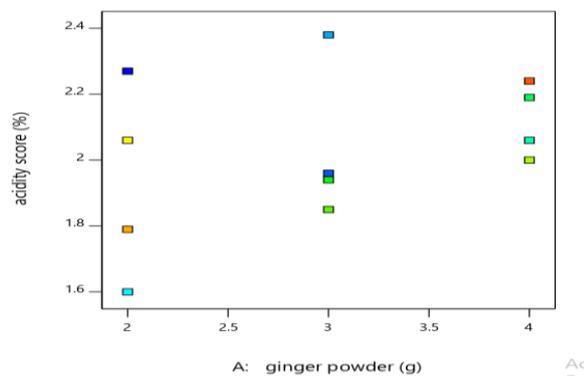
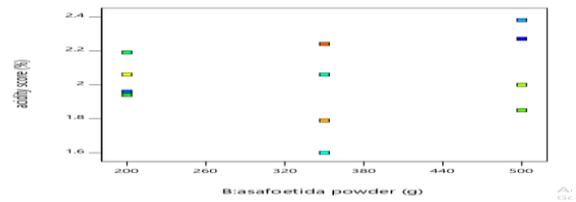


Fig (1): acidity score vs ginger powder



Fig(2): acidity score vs asafoetida powder.

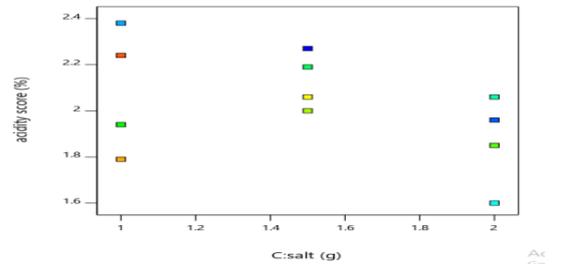


Fig (3): acidity score vs salt

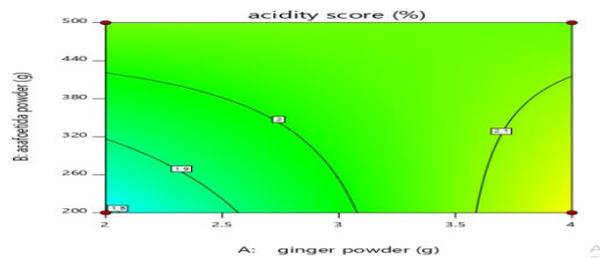


Fig (4): Acidity score vs ginger powder and asafoetida powder

III. CONCLUSION:

The optimization of this appetizer shows a maximum acidity score of 2.38 % for ginger powder (2g-4g), asafoetida powder (200g -500g), salt (1g-2g) using RSM(Box- benhken method). In a similar study, the acceptability score of the drink is 7.0 to 7.8 using Overall acceptability score.

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