

Study on Pomegranate Peel Powder Non-Caffeinated Tea Powder as a Promising Alternative

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Abstract

The Indian tea industry is estimated to be at a whopping Rs 22000 crore annually (US \$ 3.35 billion) and is steadily increasing. Indians are continuously seeking changes in their lifestyles and food habits and experimenting with cuisines and beverages. Green tea has become a brand in itself. Indian green tea market is estimated to grow at a CAGR of around 7% during 2019-2025.

Specialty tea's is attracting affluent, young, educated and health-conscious consumers who like to experiment with unique and organic flavours. The consumer preference is moving from plain green tea into flavoured tea's.

But these green tea's and its flavour variants contain caffeine. Although some amount of caffeine is good for health it has many serious health risks such as high blood pressure, hypertension among young adults, insomnia, indigestion, infertility, inhibition of collagen production in skin etc., Caffeine is an addictive drug whose consumption must be limited. Hence an alternate natural substance that not only tastes good but also smells great that has no health risk and caffeine free is very much needed. Dry pomegranate peel is taken as a substitute of green tea in this study. Pomegranate peel powder is manufactured by washing, drying it for 20 minutes at 350°C. The major availability of this pomegranate waste is found in juice centers and factories, at present this waste is thrown out. This study is mainly done to know the market acceptance about the product, for this study the researcher used 200 sample selected using

convenience sampling method, the study also used percentage analysis, the response that were collected, in which most of them are interested in the substitute for green tea

Introduction

A cup of pure green tea usually contains around 25 milligrams of caffeine per 8 bits servings. Caffeine is a natural occurring chemical found in the leaves, and fruits of more than 60 plants, including the leaves of tea plants, caffeine are found in a wide range of beverages like black tea, green tea, coffee, soft drinks and energy drinks. People who are in taking caffeine to much facing issues of restlessness, insomnia and irregular heartbeat'

Tea may affect our hydration especially if we drink a lot of it. that's largely because green tea contains caffeine, a compound also found in coffee, chocolate, energy drinks, and soft drinks. Today it has become a social drug. Caffeine is a natural stimulant and one of the most common food and beverage ingredient in the world. Once injected, caffeine -asses from our gut into our blood stream and makes its way to our liver. There its broken down into various compounds that can affects how our organs function, for instance, caffeine has a stimulating effect on our brain, boosting alertness and reducing feeling of tiredness. On the other hand, it can have a effects on our kidneys.

Although caffeine is a substance that is used daily it is still an addictive drug. Caffeine is a active drug that has been associated with negative health outcomes such as raised blood pressure and panic attack Gomez, R. (2020). Watson, E. J. (2016) has given evidence on violent behavior in adolescents consuming caffeine. Diego et al. (2008) has given statistics that pregnant women are at high risk for depression and anxiety symptoms if they consume caffeine. Babies that were born to mothers that consume excess caffeine during pregnancy were also having problem like lower birth rate and stress behaviour like hiccups, tremors, and jerkiness.

People who consume a substance on a daily basis must be aware about the caffeine intake risk and the large amount of it must be avoided. While as an alternative dry pomegranate peel can be grinded, made into powder and used for those people who consume more green tea.

In majority cases pomegranate peel is thrown without knowing the benefits of it. Pomegranate tea that is unsweetened or lightly sweetened can be a healthier choice than sweetened coffee, soda, and other sugar- laden drinks. Like most fruits, pomegranate peel also provides several health benefits, which may be translated into pomegranate tea. Here an attempt has been made to study the green tea drinking population and their acceptance level on alternative drinks made using pomegranate peel that have no risks of caffeine.

Materials and Methods

Materials

The main material for this product is taken from the pomegranate peel (*Punica Granatum L.*) collected from the fruit store at Mysore, India.

Collection of Primary Data

The study was based on Primary data first-hand information obtained at Mysore. Convent sampling method was adopted in selecting the customers. Data has been collected from a sample of 200 people in various locations like apartments, cafes and restaurants. A structured questionnaire was used for the collection of data. The gathered data was then transferred to the master table to facilitate and easy analysis of study

Preparation of Non-Caffeinated Pomegranate Peel Tea.

The pomegranate peels were washed to free it from any adhering flesh and samples were broken into small pieces and were roasted at 350C for 20 minutes until the colour turned to light brown. The baked pomegranate peels were grind using high speed blender, then sieved once again to obtain the fine powder (60 meshes). Figure 2.1 shows the basic steps in pomegranate peel powder production.

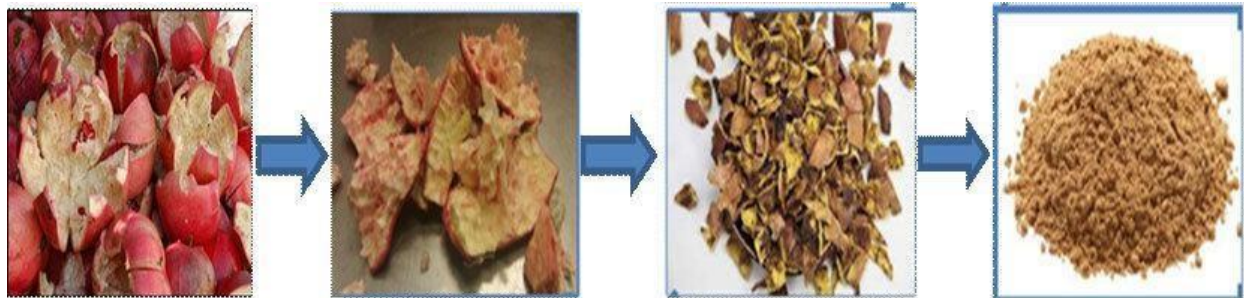


Figure 2.1 pomegranate peel powder production.

Preparation of Pomegranate Peel Tea

3, 6 and 9 grams from pomegranate peel powder was respectively, mixed with cup of boil water and 4 grams of sugar for experiment

Preparation of Conventional Coffee Drink

Control sample was prepared from 10 grams of tea with 1:1 milk and water and 4 grams sugar respectively.

Results

Analysis and Interpretation of Primary Data

From the questionnaire each variable is classified into different category and the primary data in interpreted as below.

Table.1 Demographic Profile of Respondent -Percentage Analysis

| S.NO | Variables | Classification | No of respondent | Percentage |
|------|-----------|----------------|------------------|-------------|
| 1 | Age | Below 25years | 162 | 81.1% |
| | | 25-35 years | 16 | 8.1% |
| | | 36-40 years | 6 | 2.7% |
| | | Above 40 years | 16 | 8.1% |
| | | Total | 200 | 100% |

| | | | | |
|---|----------------------------------|---------------------------|------------|--------------|
| 2 | Sex | Male | 70 | 35.1% |
| | | Female | 125 | 62.2% |
| | | Prefer not to say | 5 | 2.7% |
| | | Total | 200 | 100% |
| 3 | Educational qualification | Graduates /post graduates | 168 | 83.8% |
| | | Up to school level | 16 | 8.1% |
| | | Professional | 16 | 8.1% |
| | | Total | 200 | 100% |
| 4 | Occupation | Student | 146 | 73% |
| | | Business | 16 | 8.1% |
| | | Self employed | 11 | 5.4% |
| | | House wife | 5 | 2.7% |
| | | Total | 22 | 10.8% |
| 5 | Income per month | Below Rs 10000 | 97 | 48.6% |
| | | Rs.10001-25000 | 54 | 27% |
| | | Rs.25001-40000 | 16 | 8.1% |
| | | Above Rs 40000 | 33 | 16.3% |
| | | Total | 200 | 100% |
| 6 | Marital status | Married | 157 | 78.4% |
| | | Single | 43 | 21.6% |
| | | Total | 200 | 100% |
| 7 | Type of family | Nuclear family | 130 | 65% |
| | | Joint family Total | 70 | 35% |
| | | | 200 | 100% |
| 8 | Area of residence | Rural Urban | 97 | 48.6% |
| | | total | 103 | 51.4% |
| | | | 200 | 100% |

Source - Survey data

About 81.1% of the respondents were in the age group of below 25 years and the ratio of male to female in this sample population was 35:62. The majority 84% of the respondents were graduates and post graduates and 78% of the total respondent population was married. The majority 65% of the respondents were nuclear family system and 51% of the total respondent population living in urban area

From the questionnaire each factor that influences the green tea drinking behavior is categorized as below:

Factor Influencing Behavior of Consumption of Green Tea.

| SI.NO | Factors | Classification | No of respondent | Percentage |
|-------|--|----------------|------------------|--------------|
| 1 | Age at which you started drinking green tea | 20 to 25 years | 171 | 85.4% |
| | | Below 25 years | 24 | 12.2% |
| | | Above 25 years | 5 | 2.4% |
| | | Total | 200 | 100% |

| | | | | |
|-----------|--|------------------------------|------------|--------------|
| 2 | Occasions when you drink green tea | After food | 10 | 4.9% |
| | | Before food | 48 | 24.4% |
| | | Break time | 44 | 22% |
| | | Rarely | 98 | 48.8% |
| | | Total | 200 | 100% |
| 3 | Time at which you consumer green tea | only morning | 93 | 46.3% |
| | | morning & evening | 102 | 51.2% |
| | | Morning, Evening, &Night | 5 | 2.4% |
| | | Total | 200 | 100% |
| 4 | Frequency of green tea consumption | Below 2 times | 165 | 82.9% |
| | | 2 to 3 times | 34 | 17.1% |
| | | Above 3 times | 1 | 1% |
| | | Total | 200 | 100% |
| 5 | Is green tea a stress reliever | Yes | 156 | 78% |
| | | No | 44 | 22% |
| | | Total | 200 | 100% |
| 6 | Are you feeling brisk after consuming green tea | Yes | 112 | 56.1% |
| | | No | 88 | 43.9% |
| | | Total | 200 | 100% |
| 7 | Place of consumption | Home | 136 | 68.3% |
| | | Restaurant | 10 | 4.9% |
| | | Coffee stall near work place | 54 | 26.8% |
| | | Total | 200 | 100% |
| 8 | Awareness about pomegranate tea | Yes | 160 | 20% |
| | | No | 40 | 80% |
| | | Total | 200 | 100% |
| 9 | Response about pomegranate tea | Yes | 151 | 75.5% |
| | | No | 49 | 24.5% |
| | | Total | 200 | 100% |
| 10 | Acceptance towards pomegranate tea | Yes | 130 | 65% |
| | | No | 70 | 35% |
| | | Total | 200 | 100% |

About 85% of the respondents started drinking green tea in the age group of between 20-25. The occupation and the amount and frequency of green tea drinking habit were seen to be directly related. About 51% of them consume green tea both day and night to keep their alertness and their energy level high. They also had some psychological and health issues and this may be caused due to the overdose of caffeine into their system.

A clear result was obtained from the survey that:

- 56.1% of the respondents feel brisk after consuming green tea.
- 78% of the respondents believe green tea is a stress reliever.

Conclusion

Considering chemical composition of pomegranate peel tea powder it could be concluded that the waste peel of pomegranate could be valuable and excellent source of functional food components and low-priced caffeine substitute beverage. Also, pomegranate peel could be regarded as an excellent source of dietary fiber. With added benefits such as in treating skin problems like Hyper pigmentation, it's also helpful in reducing the risk of chronic diseases like heart diseases and diabetes, it protect against hair lose, improve focus and brain functioning, it also have many cancer fighting properties.

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