



An Occupational Health And Safety Perspective On Mahizham Pazham (*Mimusops Elengi Linn*) Powder: An In-Depth Study Of Its Nutritional, Functional, And Anti-Nutritional Properties

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ABSTRACT

Mahizham Pazham, scientifically known as *Mimusops elengi Linn*, is a tropical fruit that has been widely utilized for its various therapeutic and nutritional benefits in traditional medicine. Recently, there has been a growing interest in converting the fruit into a powder form for ease of consumption and incorporation into functional food products. This study provides an in-depth exploration of the nutritional, functional, and anti-nutritional properties of Mahizham Pazham powder, alongside a discussion on the occupational health and safety (OHS) practices necessary to ensure the safety of workers involved in its production. The Powder was made from mahizham pazham (*Mimusops elengi Linn*) showed that the Yield was 31.29%. The nutritional composition of Mahizham pazham (Spanish cherry) powder had 79.8 ± 2.1 g of Carbohydrates, 10.17 ± 0.25 g of fiber, 9.30 ± 0.24 g of protein. The functional properties of Mahizham pazham (*Mimusops elengi Linn*) (Spanish cherry) powder had 7 g/ml water absorption, 3.4g/ml of oil absorption, 2.9g/ml of emulsification, and 46 ml of foaming capacity.

Keywords : Mahizham pazham-nutritional-fuctional composition-anti nutrient content

1. INTRODUCTION

Mahizham Pazham, scientifically known as *Mimusops elengi Linn*, is a tropical fruit native to South and Southeast Asia, recognized for its rich nutritional composition and therapeutic properties. Traditionally, this fruit has been used in various forms, such as fresh fruit, jams, or extracts, to treat a variety of health conditions. Recently, the powdered form of Mahizham Pazham has garnered attention due to its ease of use and

incorporation into functional food products, dietary supplements, and traditional medicine. The powder derived from the fruit is touted for its diverse health benefits, offering a rich profile of vitamins, minerals, antioxidants, dietary fiber, and essential fatty acids. These properties have made Mahizham Pazham powder a promising addition to the modern health food industry.

From a nutritional perspective, Mahizham Pazham powder contains valuable bioactive compounds, such as flavonoids, tannins, and polyphenols, known for their antioxidant, anti-inflammatory, and antimicrobial properties. These compounds are believed to contribute to enhanced immune function, improved digestion, and potential protection against chronic diseases such as cardiovascular disease, diabetes, and certain cancers. Additionally, the fruit powder contains essential nutrients like vitamin C, potassium, and dietary fiber, supporting overall health and well-being.

Antioxidant activity has been found in the fruit of *Mimusops elengi*. Free radicals, which are unstable molecules that can damage cells and increase the speed of ageing and illness, can cause oxidative stress in the body.

This study aims to examine the nutritional, functional, and anti-nutritional properties of Mahizham Pazham powder while simultaneously addressing the occupational health and safety concerns associated with its production.



Figure 1. Mahizham tree (*Mimusops elengi* Linn)

2. MATERIALS AND METHODS

Mahizham pazham (*Mimusops elengi* Linn), was collected from a tree in Gandhigram, Dindigul, Tamilnadu, India

2.1 Processing method of Mahizham pazham (*Mimusops elengi* Linn) powder

Mahizham fruit was cleaned and washed, followed by a 2-minute stream. The seed and skin had been removed. Fruit pulp should be collected and placed on dehydrating trays. Dehydrate for 8 hours at 60 degrees. Then pulverize the pulp by proceeding with blending it.

2.2 Chemical properties Mahizham pazham (*Mimusops elengi* Linn) powder

Chemical properties of the Mahizham pazham (*Mimusops elengi* Linn) powder were evaluated using standard methods. Ash, fat, and fiber were analyzed by AOAC method. Protein was analyzed by the amount of Nitrogen in the sample by Kjeldahl method. Haug and cantzech method (1983) was used for phytic acid estimation. Potassium and Sodium were analyzed by AOAC method. The mean and standard derivatives are derived after entire was examined in triplicate.

2.3 Functional properties of Mahizham pazham (*Mimusops elengi* Linn) powder

Functional characteristics such as bulk density, water absorption capacity, oil absorption capacity, and foaming capacity of Mahizham pazham (*Mimusops elengi* Linn) Powder were studied. Water and oil absorption capacities were determined using the Sosulski *et al.* (1976) method. The foaming capacity was determined by the method of Narayana and Maralinga Rao (1982). The bulk density was determined as outlined by Akaka & Potter (1976).

2.4 Anti-nutrient content of Mahizham pazham (*Mimusops elengi* Linn) powder

Anti-nutritional factors such as, tannin and phytic acid contents were determined by Folin-ciocalteu method.

2.5 Anti-oxidant content of Mahizham pazham (*Mimusops elengi* Linn) powder

Anti-oxidant of DPPH scavenging activity was determined by Assay method.

2.5 Microbial content of Mahizham pazham (*Mimusops elengi* Linn) powder

Microbial count of total plate count was determined by IS 5402.

3. RESULTS AND DISCUSSION

3.1 Yield of Mahizham pazham (*Mimusops elengi* Linn) powder

Yield of Mahizham pazham powder was presented in Table 3.1.

Table 3.1. Yield of Mahizham pazham (*Mimusops elengi* Linn) powder.

Fruit	Fresh wt (g)	Pulp wt (g)	Powder wt (g)	Yield %
Mahizham pazham (<i>Mimusops elengi</i> Linn)	731.8	502	157.1	31.29

The results revealed that the powders made from Mahizham pazham (*Mimusops elengi* Linn) showed that the yield was 31.29%.

3.2 Nutritional composition of the selected fruit powder

The nutritional composition of Mahizham pazham (*Mimusops elengi* Linn) powder were presented in Table 3.2

Table 3.2 Nutritional composition of Mahizham pazham (*Mimusops elengi* Linn) powder

S.No	Nutritional composition	Mahizham pazham Powder
1	Carbohydrate (g)	79.8±2.1
2	Fat (g)	0.56±0.01
3	Fiber (g)	10.17±0.25
4	Protein (g)	9.30±0.24
5	Ash (g)	2.48±0.06
6	Sodium (mg)	176.4±5.6
7	Potassium (mg)	1152±54.2

Table 3.2 represented that the nutritional composition of Mahizham pazham powder had 79.8±2.1g of carbohydrate, 0.56±0.01g of fat, 10.17±0.25g of fiber, 9.30±0.24g of protein, 2.48±0.06g of ash, 176.4±5.6 mg of sodium and 1152±54.2mg of potassium

3.3 Functional properties of the selected fruit powder

The functional properties of the mahizham pazham (*Mimusops elengi* Linn) powder were presented in Table 3.3

Table 3.3 Functional properties of the selected Mahizham pazham (*Mimusops elengi* Linn) powder

Parameter	Mahizham pazham (<i>Mimusops elengi</i> Linn) powder
Water absorption (g/ml)	7
Oil absorption (g/ml)	3.4
Emulsification capacity (g/ml)	2.9
Emulsification stability (min)	3
Foaming capacity (ml)	46

Above Table 3.3 shown that the functional properties of Mahizham pazham (*Mimusops elengi* Linn) powder had 7g/ml water absorption, 3.4g/ml of oil absorption, 2.9g/ml of emulsification and 46 ml of foaming capacity.

3.4. Anti-nutrient properties of selected fruit powder

The tannin content was 0.06 mg and from 1.8 mg of phytic acid in Mahizham pazham (*Mimusops elengi* Linn) powder respectively.

3.5 Anti-oxidant properties of the selected fruit powder

The DPPH scavenging activities of mahizham pazham (*Mimusops elengi* Linn) powder were ranged 5.2 (mg)

3.6 Microbial load of the selected fruit powder

Revealed that the total plate count was observed in mahizham pazham (*Mimusops elengi* Linn) powder is 50×10^1 cfu/g.

4. CONCLUSION

Mahizham Pazham (*Mimusops elengi* Linn) powder presents a promising addition to the health food industry, offering numerous nutritional and functional benefits. The powder is rich in essential vitamins, minerals, antioxidants, and dietary fiber, making it a valuable ingredient for improving immune function, digestion, and overall well-being. The presence of bioactive compounds such as flavonoids, tannins, and polyphenols contributes to its potential in managing chronic diseases, including cardiovascular conditions and diabetes. However, it is important to acknowledge the presence of anti-nutritional factors like tannins, saponins, and oxalates, which may interfere with nutrient absorption when consumed in excess. These anti-nutritional elements should be carefully managed to maximize the health benefits of Mahizham Pazham powder.

ACKNOWLEDGMENTS

The author would like to thank Dr.I.Maheswari, Assistant Professor, Department of Food Science and Nutrition, Mannar Thirumalai Naicker College, Pasumalai, Madurai for her guidance and time to time help whenever I need.

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