

# Formulation of Value Added Dosa, Adai and Chapathi Dry Mix

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**Abstract-** Breakfast is important in re-fuelling the body with energy and nutrients, the body's glucose levels to boost the energy level to start off the day well. A good breakfast also helps to contribute essential nutrients to the diet, which may not be able to make up for during the rest of the day. Dosa, adai and chapathi were commonly consumed breakfast in South India. Dry mix helps to prepare breakfast within short duration. The value added ingredients such as Flaxseeds, Cauliflower leaves, Amaranth leaves and Italian millet were used in dry mix to make tasty breakfast and add variety to diet.

**Keywords-** Breakfast, dry mix, short duration, value added, tasty and variety.

## I. INTRODUCTION

Breakfast means 'break the fast', as the previous meal is typically 8–10 hours before waking up in the morning. Consumption of breakfast is often considered as one of the most important health-related behaviours and there has been considerable research into its effects. Over the past years, many studies have claimed that breakfast eating behaviours can affect behavioural, cognitive, and affective aspects of a person (Mullan et al., 2010).

For all age groups, breakfast consumption is associated with improved health status. In adults, breakfast consumption correlates with increased mental alertness, physical activity, and food-related self-control. For children, breakfast consumption can help to improve cognition and learning by improving attention and memory (Li et al., 2011).

Dry mix means mixing the dried ingredients in required proportion. Recipes can be easily prepared by adding water and curd to the dry mix. During morning, homemakers struggle to prepare breakfast. This dry mix helps them to prepare healthy breakfast with ease in less time and reduces the breakfast preparation burden. The value added ingredients such as Flaxseed, Cauliflower leaves, Amaranth leaves and Italian millet to add variety to diet.

## II. HEALTH BENEFITS OF VALUE ADDED INGREDIENTS

Flax seed is high in phytochemicals, including many antioxidants. It is perhaps the best source of lignans (Laura, 2014). Its unique oil is composed of 73 per cent polyunsaturated fatty acids (PUFA), 18 per cent monounsaturated fatty acids (MUFA) and 9 per cent saturated fatty acids (SFA), making it a low-saturated fat food. It is also the richest known source of omega 3 (n-3) fatty acid, ALA, which comprises 55 per cent of the total fatty acids. The ability of whole flax seed (or its powder) to reduce cholesterol in humans has been supported in several studies. A review of 9 clinical trials suggest that 15-50 grams of flax seed a day (either whole or powder) can modestly reduce total and LDL cholesterol by 1.6 to 18 per cent in both normal and hypertensive patients without any significant effects on HDL or triglycerides (Vinci, 2014).

Cauliflower has the highest wastage index, that is the ratio of non-edible to edible portion after harvesting and thus generates a large amount of organic solid waste, which creates a foul odour on decomposition. It is considered as a rich source of dietary fibre and possesses both antioxidant and anticarcinogenic properties. Phenolic compounds and vitamin C are the major antioxidants of brassica vegetables, due to their high content and high antioxidant activity (Podsdek et al., 2007).

Amaranth leaves contain 17.5-38.3% protein (dry weight basis) of which 5% is lysine; an essential amino acid that is lacking in most diets based on cereals and tubers. The protein quality of the amaranth leaf-nutrient concentrate (determined by amino acid composition, digestibility, and nutritional effectiveness) is excellent. It serves as inexpensive rich sources of protein and dietary fibre (Shukla et al., 2010).

Italian millet is one of the world's oldest cultivated crops. In the northern area of China it has been widely used as a nourishing gruel or soup for pregnant and nursing women and has been applied to food therapy. It has been recorded that millet has many nutritious and medical functions. Italian millet, medicinally used as astringent, digestive, emollient and stomachic. It is also used in the treatment of dyspepsia, poor digestion and food stagnancy in abdomen (Prashant et al., 2005).

### III. FORMULATION OF DOSA, ADAI AND CHAPATHI

The process involved in formulation of dosa, adai and chapathi can be seen in upcoming headings.

1. Formulation of Dosa
2. Formulation of Adai
3. Formulation of Chapathi
4. Sensory Evaluation

#### 1. Formulation of Dosa:

The raw materials used in dosa are Italian millet, parboiled rice; black gram dhal, flaxseeds, cauliflower leaves, amaranth leaves and fenugreek were purchased in departmental store. The ingredients were cleaned by removing unwanted materials. Parboiled rice and black gram dhal were milled. Fenugreek and flaxseed were roasted and grind to fine powder. Cauliflower leaves and amaranth leaves were washed, blanched, chopped and dried using cabinet drier. After drying, the leaves and Italian millet were made into a powder. Then all the powders were mixed. The proportions of ingredients used in dosa can be seen in table I.

Table 1. Proportions of Dosa

S.No	Ingredients	Quantity (100 g)		
		5 %	10%	15%
1.	Parboiled rice	67	65	62
2.	Black gram dhal	28	25	23
3.	Flaxseed	1	2	3
4.	Cauliflower leaves	1	2	3
5.	Amaranth leaves	1	2	3
6.	Italian millet	1	3	5
7.	Fenugreek	1	1	1

#### 2. Formulation of Adai:

The raw materials used in adai are flaxseed, cauliflower leaves, amaranth leaves, Italian millet, parboiled rice; black gram dhal, bengal gram dhal, red gram dhal, small onion, curry leaves, red chili and cumin seed were purchased in departmental store. The ingredients were cleaned by removing unwanted materials. Parboiled rice, black gram dhal, bengal gram dhal and red gram dhal were milled. Small onion and curry leaves were chopped and dried. Dried small onion

and curry leaves, red chili and cumin seeds were made into a coarse powder. Cauliflower leaves and amaranth leaves were washed, blanched, chopped and dried using cabinet drier. After drying, the leaves were made into a powder. Finally all the ingredients were mixed. The proportions of ingredients used in adai can be seen in table II.

Table 2. Proportions of Adai

S.no	Ingredients	Quantity (100 g)		
		5%	10%	15%
1.	Parboiled rice	20	18.75	17.50
2.	Black gram dhal	20	18.75	17.50
3.	Bengal gram dhal	20	18.75	17.50
4.	Red gram dhal	20	18.75	17.50
5.	Flaxseed	1	2	3
6.	Cauliflower leaves	1	3	5
7.	Amaranth leaves	1	1	1
8.	Italian millet	2	4	6
9.	Small onion	10	10	10
10.	Curry leaves	3	3	3
11.	Red chilly	1	1	1
12.	Cumin seeds	1	1	1

#### 3. Formulation of Chapathi

The raw materials used in chapathi are wheat, Italian millet, flaxseeds, cauliflower leaves and amaranth leaves were purchased in departmental store. The ingredients were cleaned by removing unwanted materials. Wheat was milled. Flaxseed was roasted and grind into a fine powder. Cauliflower leaves and amaranth leaves were washed, blanched, chopped and dried using cabinet drier. After drying, the leaves were made into a powder. Then all the powders were mixed. The proportions of ingredients used in chapathi can be seen in table III.

Table 3. Proportion of Chapathi

S.no	Ingredients	Quantity (100 g)		
		5%	10%	15%
1.	Wheat flour	95	90	85
2.	Flaxseed	1	2	3
3.	Cauliflower leaves	1	2	3
4.	Amaranth leaves	1	2	3
5.	Italian millet	2	4	6

#### 4. Sensory Evaluation

Sensory evaluation is a scientific method that evokes measures, analyzes and interprets responses to products, as perceived through the senses of sight, smell, taste, touch and sound. Humans are used as panelists to test the products.

Sensory evaluation was conducted in the Department of Home Science with Food Biotechnology for the proportions of 5% (A), 10% (B) and 15% (C) value added dosa, adai and chapathi. Dosa and adai was prepared by adding required amount of water, curd and salt with the dosa and adai mix. Chapathi was prepared by adding salt, oil and water (120ml). Three proportions of dosa, adai and chapathi were prepared and kept for sensory evaluation. Sensory evaluation of products were evaluated by panellists using nine point hedonic rating scale (Appendix I).

#### IV. RESULTS AND DISCUSSION

The data revealed that the products of dosa, adai and chapathi prepared from 10% value added dry mix were scored higher than 5% and 15%. The total mean scores of dosa, adai and chapathi can be seen in table IV.

Table 4. Total Means Score of Overall Acceptability of Dosa, Adai and Chapathi

Products	Proportions	Colour	Flavour	Texture	Taste	Appearance	Overall Acceptability	Total mean score
Dosa	5%	8.2	8.0	8.7	8.7	8.8	8.2	8.3
	10%	8.6	8.6	8.8	8.7	8.8	8.3	8.6
	15%	8.3	7.5	7.2	7.2	8.3	8.0	7.7
Adai	5%	7.6	7	7.8	7.7	7.2	7.7	7.5
	10%	8.8	8.6	8.7	8.8	8.6	8.8	8.7
	15%	8.5	8.5	8.8	8.5	8.3	8.5	8.5
Chapathi	5%	7.6	7.5	8.2	8.3	7.4	8.5	7.9
	10%	8.8	8.8	8.8	8	8.6	8.7	8.6
	15%	7.2	7.4	7.5	7.5	7.5	7.3	7.4

#### V. CONCLUSION

People expect tasty breakfast, but their breakfast was not upto expected level. So they skip breakfast, it leads to gain weight. So they move to tasty unhealthy breakfast such as noodles. The preparation of Dosa, Adai and Chapathi from value added dry mix gives tasty and healthy breakfast.

APPENDIX I. Sensory Evaluation of Value added Dosa, Adai and Chapathi dry mix

S.No	Sensory Parameters	Dosa			Adai			Chapathi		
		A	B	C	A	B	C	A	B	C
1.	Appearance									
2.	Colour									
3.	Flavour									
4.	Texture									
5.	Taste									
6.	Overall Acceptability									

- 9- Like Extremely
- 8- Like Very Much
- 7- Like Moderately
- 6- Like Slightly
- 5- Neither Like nor Dislike
- 4- Dislike Slightly
- 3- Dislike Moderately
- 2- Dislike Very Much
- 1- Dislike Extremely

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