THE DEVELOPMENT OF NUTRITIOUS GLUTEN-FREE COMPOSITE FLOUR BLENDS FOR INDIAN FLATBREAD TO MEET THE NEEDS OF AUTISTIC CHILDREN IN GWALIOR, MADHYA PRADESH, INDIA

DR. DIPALI SAXENA

DEPARTMENT OF FOODS AND NUTRITION, SHRI VAISHNAV INSTITUTE OF HOME SCIENCE, SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA INDORE, MADHYA PRADESH, INDIA

Email id: dipalisaxena@svvv.edu.in

SCIFORUM-102572

Introduction

- The nutritional needs of autistic children in Gwalior necessitate the development of gluten-free complementary foods.
- This research focuses on formulating gluten-free composite flour blends for Indian flatbread (chapatti) and on evaluating their chemical, physical, textural, and sensory properties.
- The aim is to create a nutritious and acceptable alternative to traditional wheat-based chapatti.

METHODS

The optimal blends comprised *oryza sativa* (rice), *sorghum bicolor* (sorghum), and *glycine max* (soybean) flours.

A constant 40% rice flour percentage was maintained due to its ability to impart a white color resembling that of wheat flour chapatti.

Blends P1, P2, P3, P4, and P5 were formulated with varying percentages of sorghum and soybean flours. These blends were assessed for their chemical, physical, textural, and sensory properties by the standard methods.

Formulation of Nutritious Gluten-Free Composite Flour Blends for Indian Flatbread

Ingredients(gm)	P1	P2	P3	P4	P5
Rice Flour	40	40	40	40	40
Sorghum Flour	10	20	30	40	50
Soyabean Flour	50	40	30	20	10
Salt	0.5	0.5	0.5	0.5	0.5
Oil	2	2	2	2	2
Binding agent	1	1	1	1	1

Characteristics/attributes	Mean score				
	Standard	P1	P2	P3	P4	P5
Colour	8.40	7.1	7.4	7.7	8.4	8.2
Appearance	8.30	6.3	6.8	7.4	7.3	6.8
Texture	8.90	5.9	6.7	6.7	6.9	7.1
Aroma	9.10	6.2	7.1	7.2	7.1	7.2
Mouthfeel	8.75	6.4	6.9	6.9	7.1	7.0
After taste	8.98	6.1	6.6	7.2	7.4	7.1
OAA	9.10	6.3	6.9	7.1	7.3	7.2

RESULTS

- The standard wheat flour emerged as the most acceptable, with an overall acceptability score of 9.10.
- Chapatti containing the P4 composite flour blend were the second choice, with a score of 7.3, while chapatti containing the P1 composite flour blend was the least acceptable, with a score of 6.3 on sensory evaluation. Besides the sensory results, a proximate analysis also reveals that the P4 composite flour blends have high protein and ash contents.
- The findings highlight the importance of the chosen ratios of rice, sorghum, and soybean flours in achieving the desired qualities with nutritional benefits.

Method of making dough and Chapatti

Gluten-free flour +
Knead with warm water (32ml)

↓

A soft dough formation

↓

Prepare a ball

↓

Make a flat thin round flat bread with the help of rice flour

↓

Heat a heavy frying pan, over medium heat and cook chapati on both sides

CONCLUSION

The developed gluten-free composite flour blends, particularly given the composite flour blends, provide a promising alternative for gluten-free chapatti that meets the dietary requirements of autistic children. These blends ensure better acceptance and adherence, contributing to the improved nutritional intake and overall well-being of the target group