



Product Profile

Pulse Flour Milling and Utilization Project | Cigi (Canadian International Grains Institute) | cigi.ca



Pita Bread Formulated with Yellow Pea Flour

Yellow Pea Flour in Pita Bread

The addition of yellow pea flour to traditional pita bread formulations can improve the protein and dietary fibre content, and contribute valuable vitamins and minerals to the end product. Different milling methods have been shown to produce yellow pea flours that vary in physical and functional characteristics. Selecting a yellow pea flour with the right specifications will ensure these flours are successfully incorporated in pita bread applications without compromising product quality.

Pita Bread Formulation and Processing

Pitas containing yellow pea flour were prepared according to the formulation provided in Table 1. Pin, roller, hammer and stone milled yellow pea flours (Table 2) were added at a level of 30% (by flour) to determine if the milling method used to prepare the pea flour affected pita bread quality. A pita made from 100% Canada Western Red Winter (CWRW) wheat flour was also prepared for comparison purposes.

Dough was mixed with a Hobart mixer. Mixing time for the 100% wheat flour pitas was 6 minutes and for the yellow pea flour containing pitas was 5 minutes. Dough was then divided into 95 g pieces, rounded and proofed for 20 minutes for wheat pitas and 10 minutes for the yellow pea flour pitas. After proofing, the dough balls were sheeted to produce discs approximately 20 cm in diameter. A final proofing of 30 minutes was done for all pitas. Pitas were baked in a Pavailler tunnel oven set to 500°C. Baking time for the wheat pitas was 75 seconds and 65 seconds for the yellow pea flour pitas.

Nutrition Facts for Pita Bread Formulated with 30% Yellow Pea Flour

Nutrition Facts Valeur nutritive	
Serving Size (50 g) / Portion (50 g)	
Servings Per Container	
Portions par contenant	
Amount Teneur	% Daily Value % valeur quotidienne
Calories / Calories 170	
Fat / Lipides 0.5g	1%
Saturated / saturés 0.1g + Trans / trans 0g	1%
Cholesterol / Cholestérol 0mg	
Sodium / Sodium 190mg	8%
Carbohydrate / Glucides 35g	12%
Fibre / Fibres 3g	12%
Sugars / Sucres 1g	
Protein / Protéines 8g	
Vitamin A / Vitamine A	0%
Vitamin C / Vitamine C	0%
Calcium / Calcium	2%
Iron / Fer	10%

Table 1. Formulation for Pita Bread Containing 30% Yellow Pea Flour

Ingredient	Control Pitas Bakers %	Yellow Pea/Wheat Flour Pitas Bakers %
CWRW flour	100	70
Yellow pea flour	0	30
Water ¹	60	55
Yeast (compressed)	1	1
Salt	1	1

¹Water addition based on optimal dough handling properties

Table 2. Physical and Functional Specifications of Whole and Split Yellow Pea Flours and Corresponding Pita Bread Quality

Pea Flour Production Method	Whole/Split Flour Properties			Whole/Split Yellow Pea Flour Pita Bread Properties		
	Particle Size (µm)	Starch Damage (%)	Water Absorption Capacity (g/g)	Pocket Height (mm)	Weight (g)	Top Layer Force to Break (g)
CWRW wheat flour	ND ¹	ND ¹	ND ¹	66.08	78	1055
Pin – Coarse	277/150	0.99/1.24	1.3/1.0	60.3/61.7	81/81	804/1012
Pin – Fine	97/44	1.34/1.49	1.3/1.4	60.5/62.3	81/81	799/874
Roller	237/62	2.75/2.97	1.4/1.4	59.7/62.2	82/81	771/885
Hammer	274/175	1.01/1.31	1.6/1.1	62.8/62.6	79/81	857/899
Stone	596/330	1.12/1.53	1.9/1.1	62.9/64.6	79/80	834/911

¹Data for wheat flour properties not available

Results and Recommendations

Mixing and intermediate proofing time for the yellow pea flour containing pitas were both reduced due to an increase in dough stickiness which was likely due to a decreased gluten content and high levels of starch damage. The baking time of the yellow pea flour pitas was decreased due to an increase in browning which may be due to the higher protein content and presence of lysine in the yellow pea flours. All pitas made with yellow pea flour formed a pocket. With the exception of the hammer milled flours, pitas made with split flours produced slightly higher pockets compared to whole flours milled using the same milling methods. There was no effect on the final texture of the yellow pea flour pitas regardless of milling method or the use of split or whole yellow pea flour.

Among the flours used in this study, the stone and hammer milled flours had minimal effects on end pita quality and produced pitas with the highest pocket height, greatest diameters and weights most similar to the wheat pita. Therefore, choosing a whole yellow pea flour with functional and physical characteristics similar to the stone and hammer milled flours would be recommended when incorporating whole yellow pea flour in pita bread applications.



Pita Bread Formulated with Yellow Pea Flour (L-R: 100% CWRW Wheat Control, 30% Stone Milled Split Yellow Pea Flour, 30% Stone Milled Whole Yellow Pea Flour)

CONTACT US

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Project Partners and Funders

