



Product Profile

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



**Tortilla Formulated with
Yellow Pea Flour**

Yellow Pea Flour in Tortillas

The addition of yellow pea flour in tortillas increases both dietary fibre and protein content and contributes essential vitamins and minerals. Different milling methods have been shown to produce yellow 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 tortilla applications without compromising product quality.

Tortilla Formulation and Processing

Tortillas were made following a standard commercial method for tortilla production using the formulation provided in Table 1.

Dry ingredients were combined using a paddle attachment on a Hobart stand mixer. Water was added and mixed for 1 minute on speed 1. Oil was added and mixed for an additional minute on the same speed. The speed was increased to 2 and the dough was mixed for 4 minutes. The dough was scaled to 1440 g and allowed to rest for 10 minutes. A bun divider was used to form 40 g dough balls which were immediately pressed into 7 inch diameter discs using a heated tortilla press. The tortillas were cooked on a hot griddle for 25 seconds on each side or until puffing and browning occurred. Tortillas were allowed to cool prior to packaging.

Table 1. Formulation for Tortillas Containing 30% Yellow Pea Flour

Ingredient	Yellow Pea/Wheat Flour Tortillas Bakers %
Wheat flour	70
Yellow pea flour	30
Salt	1.5
Baking powder	1.5
7-B Inactive dry yeast	1
Sugar	0.5
Sodium stearoyl lactylate (SSL)	0.375
Emulsifier	0.375
Calcium propionate	0.375
L-cysteine	
As a solution	40ppm
As a dry ingredient	0.004
Fumaric acid	0.5
Water ¹	50
Canola oil	10

¹Water addition based on optimal dough handling properties

Table 2. Physical and Functional Specifications of Whole and Split Yellow Pea Flour and Corresponding Tortilla Quality

Flour Type	Whole/Split Flour Properties			Whole/ Split Flour Tortilla Properties		
	Particle Size (µm)	Starch Damage (%)	Water Absorption Capacity (g/g)	Diameter (cm)	Force Required to Puncture (g)	Rollability (Day 3) /5
CWRW wheat flour	67	ND ¹	0.74	17.2	392	5
Pin - Coarse	277/130	0.99/1.24	1.3/1.0	16.7/17.1	311/250	3.3/3.3
Pin - Fine	97/44	1.34/1.49	1.3/1.0	16.9/17.1	300/253	3.8/2.3
Roller	237/62	2.75/2.97	1.4/1.4	16.5/17.0	313/279	4.3/3.5
Hammer	274/175	1.01/1.31	1.6/1.1	16.7/17.6	301/290	3.8/4.3
Stone	596/330	1.12/1.53	1.9/1.1	16.7/17.3	320/277	4.8/3.5

¹ Data for wheat flour not available

Results and Recommendations

Tortilla quality was influenced by both the use of split or whole yellow pea flours and the milling method used. The use of whole yellow pea flours resulted in tortillas with greater firmness that required more force to puncture compared to the tortillas made with split yellow pea flours. With the exception of the hammer milled flour, the whole flours produced tortillas that had higher rollability scores suggesting that the higher water absorption capacity of the flours resulted in better water retention and flexibility.

Compared to the 100% wheat flour tortillas, none of the tortillas formulated with yellow pea flour scored the same when evaluating overall texture and rollability. However, the stone milled flour was comparable indicating that yellow pea flours with a coarser average particle size and high water absorption capacity can be successfully used as an ingredient in tortillas. Further evaluation to optimize water addition and mixing times is recommended. The use of enzymes may also be beneficial in improving shelf life and flexibility, however further research is required.



Tortilla Press

Nutrition Facts for Tortillas Formulated with 30% Whole Yellow Pea Flour

Nutrition Facts	
Valeur nutritive	
Serving Size (40 g) / Portion (40 g)	
Amount	% Daily Value
Teneur	% valeur quotidienne
Calories / Calories 110	
Fat / Lipides 2.5g	4%
Saturated / saturés 0.3g	2%
+ Trans / trans 0g	
Cholesterol / Cholestérol 0mg	
Sodium / Sodium 190mg	8%
Carbohydrate / Glucides 17g	6%
Fibre / Fibres 2g	8%
Sugars / Sucres 0g	
Protein / Protéines 4g	
Vitamin A / Vitamine A	0%
Vitamin C / Vitamine C	0%
Calcium / Calcium	4%
Iron / Fer	8%

CONTACT US

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