

## FERMENTATION OF COMBINED WHEAT AND CHICKPEAS DOUGH FLOUR: IMPACT FACTORS

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The aim of this study was to investigate the impact of partial substitution of wheat flour with chickpea flour and to investigate the effect of composite wheat and chickpea flour (*Cicer arietinum L.*) on the baking process (especially on dough fermentation), also to investigate the dough technological and rheological properties and consumption indices of obtained products.

Due to the high carbohydrates content, water-soluble vitamins (especially the B-complex), minerals (calcium and iron) the addition of chickpea flour to cereal product (including bread) formulations would essentially improve their nutritional quality. In addition, chickpea proteins are rich in lysine, but poor in sulfur-containing amino acids, and in cereal proteins the situation is reversed. Thus, the combination of cereal proteins with chickpeas would provide a better overall balance of essential amino acids.

The dough fermentation is the process between the end of kneading and the dividing operation, during which, as a result of biochemical, microbiological, physical, and colloidal processes is obtained a large volume, extendable and resistant dough.

Considering the perspective of establishing the opportunity to apply chickpea flour and the relationship with different factors (chickpea flour, salt, sugar and fat) in the dough environment, the dough fermentation process was monitored based on the dynamics of carbon dioxide formation.

The obtained data show that the gas volume produced by doughs from mixed flours is higher (increase up to 40%) and is directly related to the share of chickpea flour. The improvement of the gas-forming capacity is determined, first of all, by the fact that chickpea flour contains a higher amount of sugars than wheat flour. Secondly, chickpea flour is rich in nitrogenous substances, mineral salts, vitamins, which are important elements for nutrition, multiplication and yeast activity.

**Keywords:** chickpea flour (*Cicer arietinum L.*), fermentation, dough, carbon dioxide

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