1. ABOUT THE DATASET

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Title: Data used in the article ‘Effect of defatted melon seed residue (DMSR) on dough development and bread quality’

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Organisation: University of Reading

Rights-holder(s): Guoqiang Zhang, University of Reading

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Description: This dataset contains data obtained from experimental work on defatted melon seed residue (DMSR) in the production of a white loaf of bread. Three doughs and bread formulations were evaluated including a control (100% wheat flour) and two formulations in which wheat flour was replaced with 5% and 10% of DMSR. Data was obtained using a farinograph (dough water absorption, dough development time, dough stability time, and mixing tolerance index), texture analyser with a Kieffer rig (dough extensibility; hardness, springiness, cohesiveness, chewiness of breads), moisture balance (bread moisture), oven (weight loss during baking), Volscan Profiler (bread specific volume), chroma meter (bread crust and crumb colour), Image J software (cell number and cell average size).

Cite as:

Zhang, Guoqiang and [Rodriguez-Garcia, Julia](https://researchdata.reading.ac.uk/view/creators/Rodriguez-Garcia=3AJulia=3A=3A.html) (2022): Data used in the article ‘Effect of defatted melon seed residue (DMSR) on dough development and bread quality’. University of Reading. Dataset. <https://doi.org/10.17864/1947.000439>

Related publication:

Guoqiang Zhang, Afroditi Chatzifragkou, Dimitris Charalampopoulos, Julia Rodriguez-Garcia. Effect of defatted melon seed residue (DMSR)on dough development and bread quality. Current research in food science, in preparation.

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2. TERMS OF USE

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3. PROJECT AND FUNDING INFORMATION

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No funding was received.

This work was done as part of Guoqiang Zhang’s PhD project.

4. CONTENTS

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Data processing and preparation activities

Data was collected in Excel files. Different tabs have been assigned for different measurements. For data presentation an index tab at the beginning of each Excel file was created with the sample nomenclature, an explanation of the content of the file and a description of each of the variables studied. Data replicates are presented in the same columns with the heading ‘Replicate’.

File listing:

1. Dough.xlsx: this file contains the data of the mixing properties and uniaxial extensibility of doughs (Table 1) in terms of:
   1. Table 1: WA- water absorption; DDT- dough development time; DST- dough stability time; MTI- Mixing tolerance index.
   2. Table 1: R/E - resistance to extension; E - extensibility
2. Bread.xlsx: this file contains the data of the physical (Table 2, Table 3, Table 4) and chemical properties of breads (Table 5) in terms of:
   1. Table 2: Weight loss during baking (WL %)
   2. Table 2: Specific volume (mg/ml)
   3. Table 2: Cell crumb structure - cell number
   4. Table 2: Cell crumb structure - Cell average size
   5. Table 3: Bread texture [hardness (N), springiness, cohesiveness, chewiness(N)]
   6. Table 4: Crust colour
   7. Table 4: Crumb colour
   8. Table 5: Proximate composition (moisture, protein, lipid, ash, starch, and fibre (% w/w).
3. ScannedImages: this folder contains scanned images of bread slices.
4. ScannedImages.xlsx: this file contains an index and description of each of the images shared in the ScannedImages folder.

Variables explanation

1. Dough:
   1. Control: Bread dough made with 100% wheat flour
   2. DMSR: Defatted melon seed residue
   3. DMSR5: Bread dough in which 5% of the wheat flour was replaced with defatted melon seed residue
   4. DMSR10: Bread dough in which 10% of the wheat flour was replaced with defatted melon seed residue
   5. WA: Water absorption
   6. DDT: Dough development time
   7. DST : Dough stability time
   8. MTI: Mixing tolerance index
   9. R/E: resistance to extension
   10. E: Extensibility
2. Bread:
   1. Control: bread made with 100% wheat flour
   2. DMSR5: bread in which 5% of wheat flour was replaced with defatted melon seed residue
   3. DMSR10: bread in which 10% of wheat flour was replaced with defatted melon seed residue
   4. WL: Weight loss during baking (%) = (dough-biscuit/dough) ×100
   5. L\*: 0(black)and 100(white)
   6. a\*: -a\*(greenness)and +a\*(redness)
   7. b\*: -b\* (blueness)and +b\*(yellowness)B: Biscuit
3. ScannedImages:
   1. Control: Bread made with 100% wheat flour
   2. DMSR5: Bread in which 5% of wheat flour was replaced with defatted melon seed residue
   3. DMSR10: Bread in which 10% of wheat flour was replaced with defatted melon seed residue

5. METHODS

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Please see Materials and Methods section in the related article:

Guoqiang Zhang, Afroditi Chatzifragkou, Dimitris Charalampopoulos, Julia Rodriguez-Garcia. Effect of defatted melon seed residue (DMSR)on dough development and bread quality.

The section includes materials, dough properties, bread baking procedure, bread physical characteristics, bread texture profile analysis, textural analysis, colour measurement of crust and crumb, proximate composition analysis, and statistical analysis.