**Effect of gluten on texture profile of dough and doughnut models**

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Doughnut is product that the main components are wheat flour and have been greatly appreciated by consumers. Developments of gluten free doughnuts are interesting. The objective of this research was to investigate the effect gluten levels on texture profile of dough and fried donut and sensory properties. Wheat starch were mixed with gluten at various ratio (100:0, 95:5, 90:10.0, 85:15.5 and 80:20). Texture profile of the wheat starch: gluten at various ratio dough and the doughnut were evaluated by using Texture Analyzer. The results showed that level of gluten had a large effect on hardness, gumminess, and chewiness of the dough. For doughnut, it was found that level of gluten had the effect on texture profile. At low level gluten, showed the lowest hardness, gumminess, and chewiness. At high level gluten, showed the highest hardness, gumminess, and chewiness. The 9-point hedonic scale was used, 50 panels were asked to evaluate the product. The results demonstrated that level of gluten increase. The overall liking is also increased. From Principle Component Analysis showed that overall liking is depending on hardness, gumminess, and chewiness respectively.

*References:*

1. Elisa Julianti, Herla Rusmarilin, Ridwansyah, Era Yusraini, Functional and rheological properties of

composite flour from sweet potato, maize, soybean and xanthan gum, Journal of the Saudi

Society of Agricultural Sciences, Available online 5 June 2015.

2. Jihyun Kim, Induck Choi, Woo-Kyoung Shin, Yookyung Kim, Effects of HPMC (Hydroxypropyl

methylcellulose) on oil uptake and texture of gluten-free soy donut, LWT - Food Science and

Technology, Volume 62, Issue 1, Part 2, June 2015, Pages 620-627.

3. R. Moreira, F. Chenlo, M.D. Torres, Rheology of commercial chestnut flour doughs incorporated

with gelling agents, Food Hydrocolloids, Volume 25, Issue 5, July 2011, Pages 1361-1371.

4. Sungmin Jeong, Hee Won Kim, Suyong Lee, Rheological and secondary structural characterization

of rice flour-zein composites for noodles slit from gluten-free sheeted dough, Food Chemistry,

Volume 221, 15 April 2017, Pages 1539-1545.

5. Verónica Dueik, Olajide Sobukola, Pedro Bouchon, Development of low-fat gluten and starch fried

matrices with high fiber content, LWT - Food Science and Technology, Volume 59, Issue 1,

November 2014, Pages 6-11.