# Properties of sourdoughs containing hydrocolloids as soluble dietary fiber

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**Introduction:**

Sourdough is a traditional breadmaking technology characterised by the presence of lactic acid bacteria and sour taste of resultant breads. Its nutritional benefits include, amongst others, higher folate content, lower glycaemic index (GI) and increased mineral bioavailability.

Dietary fiber are oligo-,and polysaccharides, lignin and other plant substances resistant to digestion. Hydrocolloids (polysaccharides of high water holding capacity) are classed as soluble dietary fiber (SDF).

The current bread consumers show an inclination towards buying a healthy product, characterised by additive-free, natural appearance and unique properties. Sourdough bread and functional high-fiber breads fit within this category. However,the application of sourdough and DF in breadmaking, has technological implications such as altered handling and baking properties and product characteristics.

**Aim:**

The aim of the study was to assess the influence of addition of 10% of gum arabic (GA), xanthan gum (XG) and Grinsted Pectin SF 530 (Pec) upon the properties of sourdoughs during the fermentation.

**Methods:**

The sourdoughs were mixed for 5 minutes and allowed 4 hour fermentation. At the beginning of fermentation and after each hour of fermentation samples were taken from sourdough and determinations of pH and dough stickiness were run. The pH was determined with the use of spear-shaped glass electrode directly in the dough. The dough stickiness was measured with the use of Chen-Hoseney stickiness rig. Statistical analysis of the results was performed with the use of SPSS software (PASW 18).

**Results:**

The pH at the end of 4 hour fermentation ranged between 4.90 and 4.96 ($p \leq 0.05$). It was observed that the stickiness of control sourdoughs significantly increased ($p \leq 0.05$) with the fermentation time. However, there were no significant changes to the stickiness of sourdoughs prepared with the addition of hydrocolloids. A strong, negative correlation between the value of pH and the dough stickiness was identified for control sourdough bread ($R^2 = 0.618$) and for control sourdough bread with added wheat bran ($R^2 = 0.532$). Sourdoughs with added hydrocolloids showed no statistically significant correlation between the pH and the dough stickiness.

**Conclusions:**

1.There was a decrease in pH during sourdough fermentation and increase of stickiness of control sourdough and control sourdough with added wheat bran. 2. There was a decrease in pH of sourdoughs with added sources of soluble fiber during fermentation. However, the change of stickiness was not statistically significant. 3.A strong negative correlation between pH and dough stickiness was identified for both control sourdoughs. The correlations between pH and dough stickiness for sourdoughs with added sources of soluble fibre were not statistically significant.