

Analysis and correlation studies on gluten quantity and quality during production.

ABSTRACT

Three factors, mixing times (5-11 min), salt (2-8%) and water levels (61.4-65.4% for strong flour and 57.5-61.5% for weak flour) were investigated during dough mixing for the production of gluten in terms of its quantity and quality and its correlation. Quantity of gluten was measured by weighing the wet gluten content obtained from doughs washed under running tap water. The wet gluten was dried using air oven drying method to obtain the dry gluten content. In terms of quality, volume expansion analysis was performed by frying the wet gluten and measuring its volume expansion using mustard seed displacement method. The extensibility of gluten was determined using a tensile test attached to an Instron 5566 machine. Results show that gluten quantity and quality measurements gave good correlations with positive coefficient of correlation (R) which are stronger for strong flour ($0.60 < R < 0.80$) than for the weak flour ($0.30 < R < 0.50$). These correlations can be used in the gluten based industry to improve the production of gluten with respect to both the quantity and quality.

Keyword: Dough; Analysis; Volume expansion; Extensibility.