

APPLICATION FAQs – 2017-048C

Often called table sugar, sucrose is a disaccharide that is composed of one glucose unit and one fructose unit joined together by a chemical bond that is readily broken in the small intestine. Beyond its contributions as a sweetener and flavor-enhancer, sucrose acts as a tenderizer by absorbing water and inhibiting flour gluten development¹, as well as delaying starch gelatinization. Sucrose also speeds up the yeast activity and caramelizes under heat, to provide cooked and baked foods with pleasing color and aroma. The effect of added sucrose on dough rheological properties was investigated using two types of flours according to the standard Alveograph protocol. This note summarizes the main findings of the work.



Q1. CAN THE ALVEOLAB BE USED TO EVALUATE THE EFFECT OF ADDED SUCROSE ON DOUGH RHEOLOGY?

Yes. The Alveolab is perfectly suited to evaluate the impact of ingredients, commonly used in the baking industry, on dough rheology such as sucrose (Figure 1a and 1b).

Q2. WHAT ARE THE MAJOR CHANGES INDUCED BY SUCROSE ADDITION ON ALVEOGRAPH RESULTS?

Sucrose supplementation results in a weaker dough, associated with a decrease in Alveograph deformation energy (W) and tenacity (P), while an increase of dough extensibility (L), whatever the type of flour (Figure 1c, 1d and 1e).

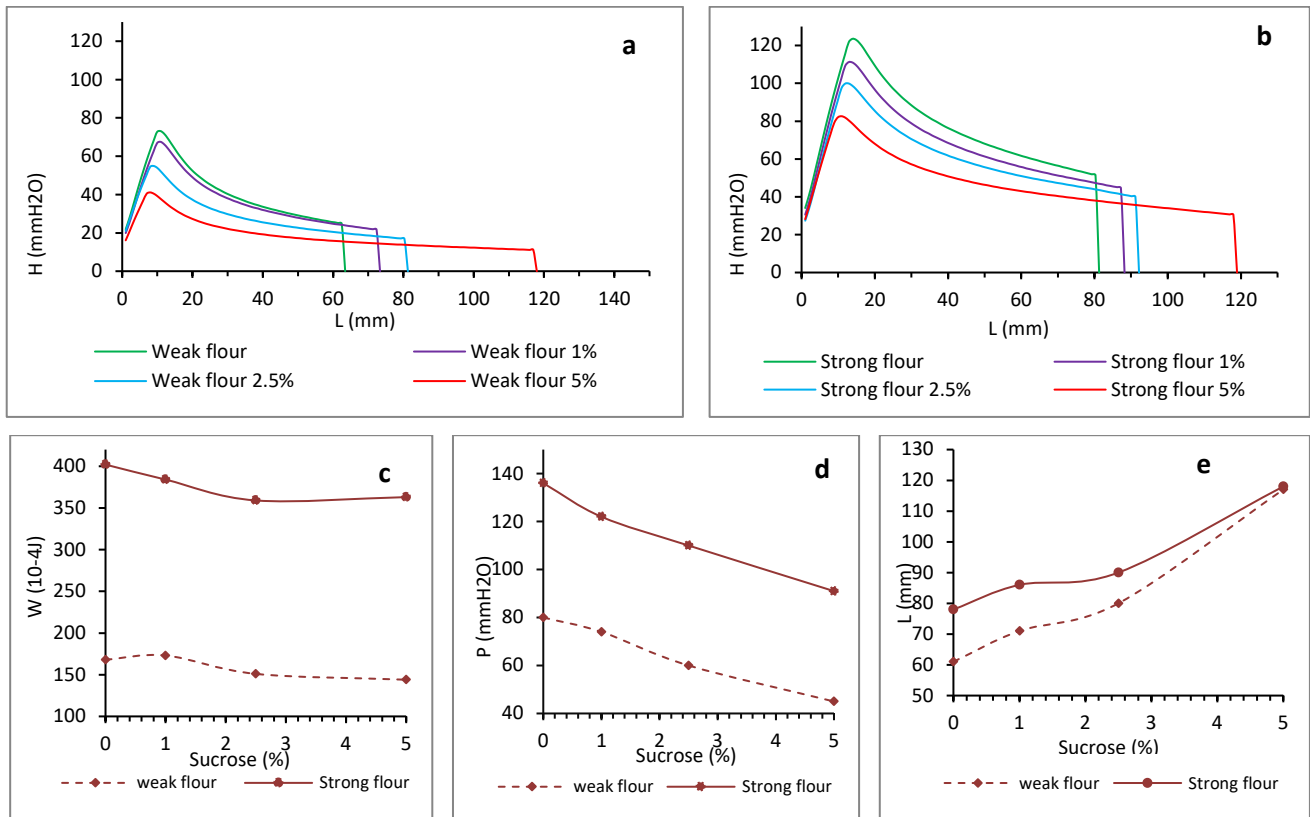


Figure 1: Alveolab curves and parameters of control and sucrose treated wheat flours. a: Alveograph curves of weak flour; b: Alveograph curves of strong flour; c, d and e: Deformation energy (W) tenacity (P) and extensibility (L) of weak and strong flours, respectively.

1- G. G. CODINĂ, V. PÂSLARU. Effect of sucrose on the Mixolab, Alveograph characteristics and breadmaking properties of strong wheat flour. Seria Agronomie. vol. 51.

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