The Effects of Different Formulation of Baking Powder on Short Biscuits Characteristics

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SUMMARY

Chemical leaveners are used to give cookies, cakes, and other baked goods their characteristic textures. They produce gas when a carbon dioxide source and an acid are mixed together and come into contact with water. The most common sources of gas are sodium or potassium bicarbonate alone or in combination with ammonium bicarbonate. A great variety of acids are used in baking powder formulations. The acid are classified according to their capacity to react at lower or elevated temperature as rapid or slow acting. The aim of these study is to evaluate a very rapid acting acid (tartaric acid) and a slow to very slow acting acid (sodium acid pyrophosphate - SAPP) on the characteristics of short biscuits. The acids were added to reach 0, 25%, 50%, 75% and 100% of neutralizing values (VN). The biscuits height and diameter, alkalinity and sensorial profile were determined.

The biscuits height without acids increased with 35%. When tartaric acid was added the height increased proportionally with quantity added while for sodium acid pyrophosphate the maximum height was reached at 75% of VN (42% increasing of height) and at 100% of VN the height increase was lower, 37%. The diameter of control biscuits increased very little, 0.33%. When SAPP was added the biscuits diameter increased progressively starting with level which represent 50% of VN. The maximum diameter was reached at a 100% level of VN and represented a 5% increasing of height. When tartaric acid was used the biscuits diameter increased with 3.33% for a level of acid representing 25%, 50% and 75% from VN and 5% for a 100% level from VN.

All sensorial characteristics of biscuits, except colour, was influenced when acids was added in biscuits recipe. The most significant modification was observed for taste, porosity, stratification and consistency. When SAPP was used the scores for porosity increased progressively from 5, for control, to 9, on a 9 points hedonic scale. The same evolution was observed for stratification. The consistency score increased from 7 to 9. The taste score decreased significant from 8 to 3, due the bitter after taste of SAPP. The taste score progressively decreased when VN increased from 25% to 100%. Similar results were obtained when tartaric acid was used. The taste scores were superior, decreased progressively from 8 to 5 due the tartaric acid remained undissolved in dough during mixing.

REFERENCES