PHYSICOCHEMICAL PROPERTIES AND ACCEPTIBILITY STUDY OF SPONGE CAKE FORMULATED WITH LOW SUGAR AND STEVIA

Hassan C.Z, Ismah M. F and Agbaje R.

ABSTRACT

Increasing in health awareness brings the consumer demands for healthy diet food with low sugar, fat and calories. In most foods however, reducing ingredients amount causes readily detectable losses in appearance and texture which related to changes in physical characteristics and consumer acceptance. In this work, stevia powder was used to totally replace sucrose in sponge cake. The effect of this substitution on cake quality was determined by measuring specific gravity and viscosity of cake batter, and specific volume, texture and sensory evaluation of cake. Five formulations were made with addition of organic sugar, lemon juice and yogurt that were noted to be acceptable in acting as bulking agent in stevia sponge cake, leading to sponge cake more similar to control one. The five formulations that have been studied are Formulation 2 (40 % organic sugar, 2 % stevia, 200 % egg white), Formulation 3 (no sugar, 3 % stevia, 180 % egg white, 10 % lemon juice), Formulation 4 (no sugar, 3 % stevia, 200 % egg white, 8 % lemon juice), Formulation 5 (no sugar, 3 % stevia, 200 % egg white, 80 % yogurt), Formulation 6 (no sugar, 3 % stevia, 180 % egg white, 100 % yogurt). Batter specific gravity increased with the increasing sugar amount. No significant increase in sponge cake viscosity was noted with the decreasing of sugar ($P>0.05$). The specific volume of cakes with and without stevia was in range between about 1.87 and 2.06 and exhibited no significant different. The texture profile analysis hardness value of Formulation 6 showed the lowest value (3.85 N) whereas the hardest was Formulation 3 (6.74 N). Highest overall liking score and best quality sponge cakes were those elaborated with organic sugar and lemon juice. Therefore, organic sugar could be used for modifying cake appearance as well as lemon juice which also was the most acceptable bulking agent when baking with stevia.

Keywords: Sponge cake; Stevia powder; Bulking agent; Physical properties; consumer acceptance