

Functionality of Ziziphus and Cardia Gums on Dough Properties and Different baked Products

Mohamed Saleh Alamri, Abdellatif A. Mohamed, Shahzad Hussain, Mohamed. A Ibraheem, Akram A. Abdo Qasem, Ghalia Shamlan, Mohammed Jamal Hakeem and Ibrahim. A. Ababtain.

King Saud University, Department of Food Science and Nutrition College of Food & Agriculture Sciences

Abstract

Functionality of hydrocolloids of different origin, gum Cordia (GC) and gum ziziphus (GZ) on paned bread, sponge cake and cookies quality and their potential use in retarding the staling process have been studied. Gums' effects were determined by assessing the pasting qualities of wheat flour slurry using rapid viscoanalyzer (RVA), dough properties by Micro-doughLab and solvent retention capacity (SRC) was done to tests the flour suitability for cookies making. After 24 and 96 hours of storage, investigations were conducted on the finished product by texture profile analysis (TPA) test. The diameter, thickness, spread, and sensory evaluation of cookies were evaluated. A hedonic sensory test of texture, aroma, taste, color, and general approval was also conducted. The data showed that with the addition of CG and ZG, dough softness, mixing time, and mixing tolerance index (MTI) increased, whereas stability and water absorption decreased. In comparison to the control and CG samples, ZG samples exhibited the most dough extensibility. The type of gum used had a significant impact on the physical properties of bread and cake and their evolution through time. Reduced amylose retrogradation was demonstrated by the lower peak viscosity and substantially lower setback of wheat flour gels which corresponded to lower gel hardness. Gums were superior at raising bread loaf volume, especially GZ, although gums had the opposite effect on cake volume. After both storage periods, the hardness of the bread and cake was much lower than the control. Except when 2% GC was used, adding GC and GZ gums to bread and cake invariably increased the overall acceptability of the product. In terms of shelf-life, GZ gum ziziphus was able to keep all texture parameters, volume, and general acceptability close to the control after storage. The thickness and diameter of the cookies increased but the spread decreased due to the added gums. Panelists rated the gum-containing cookies as having a poorer overall acceptability than the control, although only by a small margin. Cookies containing gum, on the other hand, can also deliver up to 5% soluble fiber.

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