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QUALITY CHARACTERISTICS AND STORAGE STABILITY OF GLUTEN-FREE CUPCAKES MADE OF BUCKWHEAT AND RICE FLOUR

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ABSTRACT

This study looked into the physicochemical and rheological properties of buckwheat (BW) and rice flour (RF) as the base ingredients for gluten-free cupcake formulations and how those properties related to the quality of the baked products. Different BW and RF ratios—10:90, 20:80, and 30:70—were used to create gluten-free cupcake recipes. Compared to wheat flour (WF), gluten-free BW, and rice-based composite flours showed substantial changes in proximate composition and declining number range, according to physicochemical and rheological analyses. The particle size of RF was finer than BW and wheat flour. When BW flour, the darkest flour, was blended with RF, the lightest flour, the resulting cupcakes were noticeably lighter than those made with wheat flour. With increasing amounts of BW flour, cupcakes received higher sensory scores overall. That increases the amount of BW flour in a product, which indicates more consumer appeal. Following the addition of more BW flour, the proximate composition and physical characteristics of cupcakes significantly changed. All of the cupcake samples showed a noticeable reduction in moisture content after 8 days of storage, but there was no discernible alteration in the amounts of fat or protein. Except for softness and stickiness, which showed just a slight difference in sensory scores after storage, all of the samples' sensory scores were significantly lower after 8 days. A non-significant ($p<0.05$) declining tendency was seen when cupcake height was compared to weight during storage.