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Research article

ASSESSMENT OF COMMERCIAL HYDROCOLLOIDS, *Neolitsea cassia* LEAVES EXTRACT, AND SPIRULINA IN ENHANCING CRUMB PROPERTIES OF RICE-BASED LEAVENED FOOD PRODUCTS

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Abstract

Hydrocolloids are usually applied in leavened food products for the purpose of improving crumb textural and structural properties along with the storage stability. The current study was focused on assessing the effect of selected commercially available hydrocolloid materials (Xanthan gum, Guar gum, Sodium alginate), *Neolitsea cassia* leaves mucilage, and dehydrated Spirulina (*Spirulina maxima*) powder on the quality characteristics of rice-based leavened products that are fermented and gelatinized under slightly high initial air pressure conditions. Eleven rice-based (rice: wheat, 50: 50 w/w) dough samples, comprising different levels of commercial hydrocolloids (0.5%, 0.75%), *N. cassia* leaves extract (5%, 10%), and dehydrated Spirulina powder (1%, 1.5%) were prepared. Then, they were fermented and gelatinized in an enclosed chamber at 1.0 kg/cm^2 initial air pressure. Crumb volume, texture, cellular structure properties, and the storage stability of each crumb sample were evaluated and compared with a control. Results revealed the application of 0.75% Guar gum imparted to having a comparatively high crumb volume, specific volume and low bulk density, hardness, and a low crumb hardening rate during storage, despite uneven crumb cellular structure due to coalesced gas cells. Mucilaginous materials extracted from *N. cassia* leaves contributed to having a higher moisture retention capacity of the crumb during storage. The addition of dehydrated Spirulina powder also contributes resulting in a product with better volume and texture with an acceptable effect on preserving crumb characteristics during the storage.