



УНИВЕРЗИТЕТ У НОВОМ САДУ  
UNIVERSITY OF NOVI SAD

ВРХУНСКИ РЕЗУЛТАТИ 2021.

## НАУЧНИ ИНСТИТУТ ЗА ПРЕХРАМБЕНЕ ТЕХНОЛОГИЈЕ

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### Научни рад категорије M21a

Filipčev, B., Pojić, M., Šimurina, O., Mišan, A., Mandić, A. (2021). Psyllium as an improver in gluten-free breads: Effect on volume, crumb texture, moisture binding and staling kinetics. *LWT*, 151, 112156. DOI:10.1016/j.lwt.2021.112156

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The effect of replacing commonly used hydrocolloids (i.e. xanthan (XTH), guar gum (GG), hydroxymethylcellulose (HPMC)) with psyllium on crumb texture, distribution of water populations and staling kinetics in gluten-free (GF) bread based on a blend of buckwheat and carob flour was studied. The addition of psyllium in GF formulation yielded bread with the softest and most resilient crumb. Psyllium was an effective anti-staling agent which significantly decreased the crumb hardening rate. The GF breads with psyllium and the hydrocolloids showed similar distribution of water populations, though psyllium tended to slightly increase their binding strength to the matrix. In the buckwheat/carob-based GF system, crumb firmness development was directly correlated to the amount of easily removable water population and inversely to the peak temperatures of strongly bound water which indicate higher bonding strength to the matrix. The results implied that psyllium and the tested hydrocolloids (i.e. XTH, GG, HPMC) can be interchangeably used to effectively control crumb texture and its evolution during storage of buckwheat/carob GF bread.

