

HYDRATION AND PHYSICAL PROPERTIES OF VACUUM-DRIED DURUM WHEAT SEMOLINA PASTA WITH HIGH-FIBER OAT POWDER

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The objective of this study was to evaluate the impact of high-fiber oat powder addition and vacuum drying on the hydration properties and colour of pasta. Durum wheat semolina was substituted with 0, 4, 8, 12, 16 and 20% of high-fiber oat powder. A short cut pasta (*fusilli*) was processed from wheat semolina and dried in very high temperature (VHT) in conventional drying system and by using vacuum-dryer. Cooking properties including optimal cooking time (OCT) and water uptake were evaluated. Pasta colour was determined instrumentally, using Minolta CR-400 Chroma Meter with the L*a*b* measuring system. Statistical differences in measured parameters were determined by multi-way analysis of variance (ANOVA). Drying curve for vacuum and conventional drying was determined. The results showed that drying method and oat powder addition level had significant impact on pasta colour ($P < 0.05$). Lightness and yellowness were significantly higher in vacuum-dried pasta. Value L* and a* were significantly different in samples with oat powder than in control sample. The results indicated that the oat powder addition level had significant impact on hydration properties ($P < 0.05$). Water uptake was higher in samples containing high-fiber oat powder than in control sample. The highest water uptake was observed in sample where oat powder was incorporated into recipe in 12%. Drying method did not have significant impact on hydration properties of pasta. Optimal cooking time was decreasing with growing oat powder addition level. The drying curve indicated that vacuum-drying allowed faster and more even water evaporation than conventional drying.

Keywords: Vacuum-drying, hydration properties, oat fiber, pasta

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