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# Partial replacement of animal fat by oleogels structured with monoglycerides and phytosterols in frankfurter sausages



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### ABSTRACT

Sunflower oil was structured with monoglycerides and phytosterols. The properties of the oleogels were studied by optical microscopy, large deformation mechanical measurements, dynamic rheometry and differential scanning calorimetry. The interaction between monoglycerides and phytosterols resulted in stronger oleogel networks with a differentiated crystalline structure, increased hardness and gel strength, increased storage modulus ( $G'$ ) values and decreased melting temperatures compared to monoglycerides oleogels. The oleogel structured with 15:5 monoglycerides to phytosterols weight ratio was selected to replace 50% of the pork backfat in frankfurter sausages. The control treatment (FSS1) presented higher values of hardness, brittleness, gumminess and chewiness than the oleogel-substituted samples (FSS2), whereas cohesiveness and elasticity did not present any differences. Instrumental color measurements indicated that FSS1 samples had higher  $a^*$ , lower  $L^*$  and similar  $b^*$  values compared to FSS2. No differences were detected in the oxidation levels and sensory evaluation revealed similar overall liking for the two treatments.