

Abstract

The effects of storage time prior to microwave heating on expansion of imitation cheese containing functional fibre was studied. Cheese was formulated to contain 60% moisture and 17.3% w/w resistant starch. Cheese samples were heated in a microwave oven (2540 MHz) for periods of 10–100 s. A 60%, 160%, 600% and 900% increase in maximum expansion was observed for samples that underwent microwave heating after storing for 1, 3, 7 or 9 days, respectively. Water mobility in unheated cheese increased with increasing storage time and was found to be related to moisture loss and expansion during microwave heating. Hardness of expanded samples decreased with increasing expansion and storage time. Heating samples for >50 s resulted in products exhibiting jaggedness in the force–displacement curves, reflecting the brittle/crisp texture of the products. This study demonstrates that the increase in microwave expansion of stored imitation cheese is due to changes in water mobility.