Approaches to minimise yoghurt syneresis in simulated tzatziki sauce preparation

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The phenomenon of syneresis becomes more profound in increased moisture yoghurt-based products. Such a product is the traditional Greek appetizer tzatziki that contains cucumber, a vegetable with high moisture content. During the manufacture of tzatziki, the addition of cucumber causes the protein network to break up, provoking an increase in syneresis. The aim of this study was to investigate a tzatziki manufacturing procedure that will lead to significantly decreased syneresis. Two different manufacturing procedures were compared: the extra moisture coming from cucumber was introduced before or after fermentation. The effect of adding whey protein concentrate (WPC), albumin, sodium caseinate or a mixture of these was also studied. The results show that the addition of extra moisture before yoghurt fermentation leads to a significantly lower syneresis (7.5%) and higher consistency (2000 cp) than those obtained in the case of addition after fermentation (25% and 1500 cp, respectively). The use of albumin, WPC or a mixture of albumin, WPC and sodium caseinate further decreased the phenomenon of syneresis to below 5%, without altering the colour of the product ($\Delta E^* < 2.3$).

Keywords Syneresis, Stirred yoghurt, Tzatziki, Yoghurt, Casein, Whey protein concentrate.