Effect of Coagulation Temperature on Yield, Chemical, Sensory and Textural Properties of Buffalo Milk Paneer

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Paneer, popularly known as Indian cottage cheese is prepared by heat and acid coagulation of standardized buffalo milk. The present study was carried out to investigate the effect of different coagulation temperatures on yield, chemical, sensory and textural properties of paneer cheese coagulated with lime juice. Paneer cheese was prepared from whole or skimmed buffalo milk using different coagulation temperatures (70 °C, 80 °C and 90 °C) and lime juice as the coagulant. Relevant milk coagulation temperatures were maintained using a constant temperature water bath, while a constant volume of lime juice (30 mL) with a pH of 2.3 at a temperature of 30 °C was used as the coagulant. Sensory evaluation was done for fresh paneer samples with 30 untrained panelists, using a nine point hedonic scale. Texture of paneer cheese samples were analysed in terms of hardness, cohesiveness and springiness using CT3 texture analyser. Results revealed from completely randomized design indicated that the highest yields of both whole and skimmed paneer were obtained at coagulation temperature of 70 °C. Moisture and protein content of paneer were significantly differed with different coagulation temperatures ($p<0.05$). However, fat and ash content of paneer were not significantly differed with different coagulation temperatures. According to the sensory evaluation, paneer sample prepared at a coagulation temperature of 80 °C had a significantly higher overall acceptability. It was found that hardness and cohesiveness was increased with the coagulation temperature up to 90 °C, whereas springiness increased with the temperature up to 80 °C, and then decreased with the increase in temperature. The study showed that the coagulation temperature had a significant effect on chemical, sensory, and textural properties of paneer.

Keywords: Buffalo milk, Coagulant, Coagulation temperature, Paneer