ABSTRACT

The use of soybean with 40% good quality protein and 20% oil has been limited in India, due to its beany flavour. This objectionable flavour can be modified by heat treatment, and fermentation. The utilization of soybean in cured varieties of cheese products has potential advantages, as the sesnory profile is extensively modified during curing.

The present investigation was undertaken to utilise the whole soybean (a) for developing cured cheese spreads with mild flavour, using slurry, and blend approaches, (b) to optimise the processing conditions, (c) to improve the characteristics of the products by incorporating additives, and (d) to characterise the developed products in terms of curing, and storage behaviour.

The results of maska standardization indicated that the total and net developed acidity and curd firmness increased with increased bean concentration, and 200 g bean/l water was chosen accordingly.

Spread making trials essentially consisted of utilising maska and slurry with and without milk, and cheese solids. The acceptable cheese spreads could be made with 72% cheese solids in maska containing 1.8% sodium chloride, and incubating this for 8 days at 8 to 10°C with occasional agitation.

A cheese spread was made from soy slurry containing 7.5% milk solids in the form of SMP, and cream, 2% sodium chloride, 0.01% papain, and 100 ppm GSH, that was incubated for 8 days at 25 to 30°C with added, and coupled with daily agitation and pH adjustment to 5.3. Replacing the milk solids by 13.5% cheese solids, and incubating in a sequence of 2 days at refrigerated, 3 days at room, and 3 days at refrigerated temperatures also resulted in an acceptable product. Though distinctly different from each other, each of these spreads had a pleasant, mild, acceptable sensory attributes.

In slurry based products, a desirable sensory profile was dependent on the addition of culture, GSH, and papain, agitation, and pH control to 5.3 during curing . The spreads with added 2% tri-sodium citrate or tri-sodium phosphate, 0.01% agar agar or pectin, and 1% spices were heat processed for 10 min. at 65°C for maska based spreads and 75°C for slurry based spreads.

Coarse ground pepper, and a paste of garlic with green chillies were considered most acceptable. Incorporation of 10% hydrogenated fat at the time of heat processing significantly improved the body and texture, and melt down quality of the spreads.

With respect to biochemical changes, the sensory parameters were positively related to (a) the development of TA, (b)

formation of lactic acid, (c) proteolysis in terms of increased SN, AN, NPN values, and (d) development of FFA and TVFA during curing.

The processed soy cheese spreads contained, 64 to 65% moisture, 40 to 41% fat, 24 to 35% protein, 8 to 10% ash. The spreads packed in polystreyene cups and topped with aluminium foil could be stored for 3 to 3.5 months under refrigeration.