Effect of kappa-carrageenan on the gelation of horse mackerel (T. murphyi) raw paste surimi-type

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Gelation of fresh (unfrozen) raw surimi-type paste (RS paste) from horse mackerel (T. murphyi) was studied in the presence of ?-carrageenan (0.5, 1, 2% C?) and KCl (0.5-2%) as a substitute for NaCl. Gelation was traced by measuring the storage modulus (?) during heating-cooling cycles. Variations in ? during the heating stage of the mixed system RS-C? characterised the presence of a phase separation in this stage due to C? solubilitation (at about 50°C) as well as to RS gelation (35-80°C) in the mixture. It was also observed that when C? was added as a single ingredient, it inhibited RS gelation as a function of its concentration (>2%). Nevertheless, during the cooling stage, the final G' value for the RS-2% C? mixed system was greatly increased. This reinforcing would be caused by further (cold) C? gelation in the mixture. It is theorised that C? might act by forming 'packed' microgels within the RS protein gel network, which is favoured upon application of a moderate (40°C, 60 min) t