Thematic area :Nanotechnology and nanomaterials

The effect of thymol-loaded chitosan nanofibers on proximate composition of gilthead sea bream fillets

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Proximate compositions (protein, fat, moisture and ash) of fish fillets may change during cold storage conditions. Thus, an extra effort or novel approach should also be exerted to limit the changes in these values.

For this aim, fish fillets were coated with chitosan-based nanofibers (CN: 78nm) and thymol-loaded chitosan-based nanofibers (TLCN: 102nm), which were spun using electrospinning technique. Protein, fat, moisture and ash values in fish fillets were tested, in terms of storage stability tested at 4 ± 1 °C in storage days (1st, 3rd 5th, 7th, 9th and 11th). While initial protein, fat and moisture contents of uncoated fish fillets were determined as 18.44%, 9.41% and 71.08%, those of CN and TLCN was respectively determined as 18.49%, 10.87%, 68.69% and 17.48%, 14.60% and 65.77%.

There were statistical differences between groups at the same and different days. With respect to protein, fat and moisture composition of uncoated fish fillets, the stability of fish fillets coated with CN and TLCN was more successfully kept ($p<0.05$) as compared to that of the uncoated fillets. The results of this study revealed that the fish fillets coated with TLCN samples were the most stable, so coating of fish fillets with nanofibers could be a novel approach in terms of stability in protein, moisture and fat contents during cold storage.