

## Production of natural oyster sauce by utilizing Indian oyster (*Crassostrea madrasensis*)

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Indian oysters (*Crassostrea madrasensis*) are esteemed seafood with high nutritional value. Introduction of natural oyster sauce formulation is one of the high potential alternative for small scale production. Oysters muscle (890 g) was obtained from *Crassostrea madrasensis* (n=100) collected from Gangewadiya, Kalpitiya Lagoon and treated with 7% NaCl (890 ml) and water (1780 ml) (ratio of 1:3, muscle weight: brine weight). Oyster extraction was obtained following low flame heating of the setup for 30 minutes (80 °C). Extraction (445 ml) was duplicated and 20 g, 10 ml, 75g, 0.6 ml and 175 ml of sugar, soya sauce corn flour, chocolate brown coloring and caramel were respectively added to samples which then cooked for 20 min and 40 min periods. Protein, fat, moisture, ash content, sugar content, water activity, pH and salt content were analysed in triplicates for duplicated samples to determine nutrient content and physico-chemical nature. Two samples of ambient and refrigerated storage were analyzed (40 min. cooked) in duplicates to determine shelf life of product in terms of sensory and microbial parameters of aerobic plate count (APC) and yeast and mold count. Higher acceptance was reported for sample cooked for 40 minutes with median hedonic scores 5.5, 6.0 and 6.0 for appearance, texture and taste respectively (Mann-Whitney U test; P<0.05). APC varied between samples during storage period (Two-way ANOVA). Refrigerated sample recorded the lower mean log CFU/g (1.88±1.66) for APC, than the sample stored at ambient (5.03±0.66). After 7-day storage, samples stored in ambient conditions recorded the lowest mean log APC (CFU/g) (4.272±0.009) and no counts for the refrigerated samples. After 21-day storage of samples in ambient conditions recorded the highest mean log APC (CFU/g) (5.742±0.003). Highest APC log CFU/g for the refrigerated sample was recorded after 14 days storage (2.000±0.000). Initially, no colonies were observed in samples which were stored under two conditions. Yeasts and molds were not observed in two storage conditions during this study. Median hedonic scores of appearance, texture and taste did not show variation between ambient stored and refrigerated samples as well as between storage periods (Friedman test; P>0.05). Higher sensory acceptance was recorded for aroma in ambient stored samples (6.46) than refrigerated samples (6.29) (Friedman test; P<0.05). Innovated cottage based oyster sauce formulation had higher acceptability and thus be a better alternative for value addition of oysters.

Keywords: oyster sauce, cottage industry, proximate analysis, aerobic plate count, sensory evaluation

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