
Optimization of Fermentation Conditions of Jaadi, Made from Indian Scad

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Jaadi is a traditional Sri Lankan fermented fish product where the fermentation process is extended for 3-6 months with salt and goraka (*Garcinia cambogia*). Commercial-scale production of Jaadi is restricted due to safety issues and lack of product standardization. This research was conducted to optimize the Jaadi fermentation process using Indian Scad. Lack of product consistency, hygienic processing practices and less product attractiveness are the major issues of Jaadi industry. Highest overall liking mean score was received for Jaadi produced in polypropylene vessels than clay and glass vessels, and significant differences observed between three variables ($p < 0.05$) at the preliminary study. Then, Jaadi was produced in polypropylene vessels under two fermentation conditions. The solar temperature and room temperature were the treatment and control respectively. The lowest mean pH value (3.6), highest salt percentage (21.07%) and TVB-N level (21.65 mg/ 100 g) within the acceptable limit were recorded in treatment samples. Proximate analysis revealed the good nutritive value in treatment sample while treatment shows the highest crude protein percentage (22.62%) in the 4th month. The microbial loads were reduced to 1×10^1 at the 4th month in both samples and the lowest number observed in the treatment sample. Mean scores of the sensory evaluation were higher in all attributes tested in treatment samples. There was a significant difference in all attributes of the treatment and control samples of Jaadi other than aroma ($p < 0.05$). Fish fermentation involves both indigenous fish enzymes as well as exogenous enzymes of halophilic microorganisms. Growth of microorganisms and enzymes activity depend on the salt content, pH and temperature of the fermentation vessel. Therefore, solar temperature and proper hygienic practices effectively control microflora and enzyme activity of Jaadi in order to result in better sensory attributes and good nutritive value.

Keywords: Goraka, Indian scad, Jaadi, Palatability