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FIFTH INTERNATIONAL CONFERENCE
SUSTAINABLE POSTHARVEST AND
FOOD TECHNOLOGIES
INOPTEP 2017
and
XXIX NATIONAL CONFERENCE
PROCESSING AND ENERGY
IN AGRICULTURE
PTEP 2017
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PROCEEDINGS
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PETA MEĐUNARODNA KONFERENCIJA
ODRŽIVE POSLEUBIRAJUĆE I
PREHRAMBENE TEHNOLOGIJE
INOPTEP 2017
i
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U POLJOPRIVREDI
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THE EFFECT OF LIQUID SMOKE CONDENSATE ON SALTED BONITO (*SARDA SARDA*) COLOR: A PRELIMINARY STUDY

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Along with tuna, Spanish mackerel and butterfly kingfish, Atlantic Bonito (*Sarda sarda,* Bloch, 1793) is also a member of *Scombridae* family, which commonly lives in Atlantic Ocean, Mediterranean and Black Seas. This specie is an important commercial and game fish and it is currently not under the threat of extinction. This fatty fish is one of the most commonly consumed species during winter and it is eaten as either fresh, salted or smoked. Salting and smoking are applied to extend the shelf-life of the bonito as compared to that of fresh. Recently, liquid smoke condensates were developed as an alternative smoking method, eliminating the production of carcinogenic materials and tar, which usually forms during traditional smoking. Smoking also provides a unique brownish-yellowish color to fish, enhancing the consumer preference toward this product. In this study, the effect of traditional brining, dry brining and liquid smoke on the color and area of Atlantic bonito was investigated by using computer-based image analysis. For this purpose, Atlantic bonito pieces were initially brined for four days and then dry brined for 24 hours. Then, the pieces were dipped in liquid smoke for three minutes. The digital photos were taken after each application. The pictures were analyzed by image analysis technology to elucidate the effect of each process on the area and the color parameters of bonito. Liquid smoke condensate was used on salted bonito for the first time in this study. According to our results, area of raw bonito increased from 56.0 to 60.5 upon brining, while dry brining and liquid smoking caused the pieces shrunk to 58.2 and 57.9, respectively. However, no statistical difference in terms of the areas was found among the applications ($p>0.05$). As for the color, L^*, a^* and whiteness increased during brining, while these values significantly decreased ($p<0.05$) after dry brining and liquid smoke application. As opposed to a decrease seen in b^*, hue and chromavalues of brined pieces, an increase was observed for dry-brined and liquid-smoked pieces for these parameters ($p<0.05$). When dry brining and liquid smoking applications compared, liquid smoking applied to brined and dry-brined bonito pieces for the duration of 3 minutes only was found to cause significant reductions ($p<0.05$) in b^* and whiteness while it caused significant increase ($p<0.05$) in chroma value. In other parameters of interest (area, L^*, a^* and hue), liquid smoking caused no statistically significant change on brined and dry-brined bonito pieces ($p>0.05$). This preliminary study shows that liquid smoke condensate applied on salted bonito improves the color values for better consumer perception. In the future studies, new products and shelf life studies including sensory analysis will be incorporated in the study.

Keywords: Bonito, Computer Based Image Analysis (CBIA), Liquid Smoke