



## HISTAMINE LEVELS AND HISTAMINE PRODUCING BACTERIA IN FOUR SELECTED FISH SPECIES DISPLAYED IN THREE FISH MARKETS WITHIN TRIPOLI-CITY LIBYA

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<https://doi.org/10.34302/crpjfst/2022.14.1.11>

### Article history,

Received,  
November 2020

Accepted,  
25 November 2021

### Keywords,

*Fish;*  
*Species;*  
*Histamine;*  
*HPB;*  
*Markets.*

### ABSTRACT

The study aimed to assess temperature, histamine level and histamine producing bacteria (HPB) in four species of fresh fish samples i.e, *Sardinella aurita*, *Boops boops*, *Trachurus mediterraneus* and *Scorpaenopsis scorpaenoides* that are collected from three markets (A, B, C) within Tripoli city Libya. The results revealed that 95% of the fish samples had a temperature range between 5-22°C, while 5% had a temperature < 5°C. Histamine was recorded in 43% of the samples. The ranges of histamine in sardine, bouge, saury, and mackerel samples were 1.29-5.74; 1.34-29.74; 1.31-7.57 and 1.39-2.49 mg/100 g meat, respectively. These levels did not exceed the maximum limit (10 mg/100) adopted by the Libyan authority, except one sample (29.74 mg/100 g meat). A significant difference ( $P < 0.05$ ) in histamine levels was observed among the three markets. However, a non-significant difference ( $P > 0.05$ ) was observed between the fish species. The range for the means of HPBC in sardine, bouge, saury, and mackerel samples were  $1.8 \times 10^4$ - $5.4 \times 10^4$ ;  $6.4 \times 10^4$ - $2.0 \times 10^5$ ;  $6.4 \times 10^4$ - $6.910^5$ ;  $1.6 \times 10^4$ - $4.1 \times 10^5$  cfu/g fish meat, respectively. Most of the HPB isolates were belonged to the family *Enterobacteriaceae* and some belong to the family *Vibrionaceae*. *Vibrio fluvialis* recorded the highest prevalence percentage (18%) followed by *Erwinia* spp, *S. putrefaciens*, and *K. planticola*, i.e., 12.2, 11.9 and 10.0%, respectively. The results of this study reflect the poor cooling conditions of the samples and poor cooling techniques practiced in these markets. Therefore, the hygienic practices in these markets have to be improved, and preferably the HACCP system has to be implemented.