Faculty of Veterinary Medicine

Department of Food Hygiene

Anti-oxidants and their capacity in farm fish retailed in Alexandria province

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7. ENGLISH SUMMARY

The present work studied the chemical composition of examined farm fishes (Tilapia, Mugil cephalus and Common Carp) including (Fat, protein, moisture, Ash, and fiber content), 30 samples of each type. In addition, determination of lipid peroxidation through Malondialdehyde (MDA) and measuring the level of antioxidant in muscle tissues of examined fish including; reduced glutathione (GSH), Superoxide dismutase (SOD), Nitric oxide (NO), Catalase enzyme (CAT) and Total Antioxidant capacity (TAC).

The obtained results summarized in the following items.

7.1. Proximate composition of examined farm fish:

- Mean values of **moisture content** in farmed Tilapia was 76.05±0.27; Mugil cephalus was 73.30±0.55 and Common Carp was 72.33±0.90. There is significant different ($p<0.05$) between moisture content of all three examined farm fishes.
- Mean values of **ash content** in examined farm fish Tilapia, Mugil cephalus and Common Carp were 1.33±0.03, 1.39±0.03 and 1.13±0.03, respectively. There is no significant difference between ash content of different farm fish samples.
- Mean values of **fiber content** in examined farm Tilapia, Mugil cephalus and Common Carp were 1.11±0.04, 1.29±0.08 and 2.88±0.07, respectively. There was no significant difference at ($p<0.05$) between fiber content of examined farm Tilapia and Mugil cephalus while there was significant difference between fiber content of Tilapia and Common Carp or Mugil cephalus and Common Carp.
- Mean values of **fat content** were 1.80±0.17, 3.17±0.03 and 4.62±0.25 in the examined farm Tilapia, Mugil cephalus and Common Carp, respectively. There

is a significant difference between mean values of fat content for different three breed.

- Mean values of **protein content** were 19.67±0.15, 20.87±0.33 and 18.64±0.20 in the examined farm Tilapia, Mugil cephalus and Common Carp, respectively. There is a significant difference between mean values of protein content for different three breed.

7.2. Determination of different antioxidants in muscle tissue:

- Mean values of **MDA** non-significantly increased in examined Common Carp, Mugil cephalus and Tilapia from different localities stored at -20 ºC for 48 hours from (7.93±0.41 to 9.89±1.27), (8.97±0.11 to 10.53±0.66) and 11.66±0.12 to 12.78±0.67, respectively.
- Mean values of **GSH** in muscle tissue of fish stored at -20 ºC for 48 hours non-significantly decrease in examined muscle of Common Carp from 60.23±2.65 to 56.93±2.34 mmol/gm; Mugil cephalus from 57.53±2.38 to 55.97±2.08 and Tilapia from 27.63±1.19 to 25.87±1.33 mmol/gm, respectively.
- Mean values of **SOD** in muscle tissue non-significantly decreased in examined Common Carp from different localities stored at -20 ºC for 48 hours from (5.22±0.17 to 3.92±0.35); in Mugil cephalus from 4.07±0.11 to 3.42±0.26 and in Tilapia from 3.21±0.64 to 3.04±0.14 mmol/gm.
- Mean values of **No** in muscle tissue of fish stored at -20 ºC for 48 hours significantly increased in examined Common Carp from 0.97±0.21 to 1.31±0.29 mmol/gm and in Tilapia from 2.18±0.45 to 2.82±0.37 mmol/gm, while no significantly increased in Mugil cephalus from 2.38±0.08 to 2.63±0.25 mmol/gm, respectively.
- Mean values of **catalase content** in muscle tissue of farm fish stored at -20 ºC for 48 hours non significantly decreased in examined Common Carp from

6.32±0.29 to 5.93±0.30; Mugil cephalus from 6.06±0.08 to 5.95±0.11. Finally, in Tilapia significantly decreased from 5.15±0.10 to 4.91±0.16 mmol/gm, respectively.

- Mean values of **TAC** in muscle tissue of fish stored at -20 ºC for 48 hours non-significantly decreased in examined Common Carp from 1094.50±27.44 to 1024.67±57.71; Mugil cephalus from 809.30±22.93 to 775.83±48.51 and Tilapia from 702.67±15.51 to 651.83±41.86, respectively.