Fig 1: Proximate composition of raw muscle of *Hypophthalmichtys molitrix* (Silver carp) stored under frozen conditions at -12±2°C.

Fig 2: Percent decrease in proximate composition of raw muscle of *Hypophthalmichtys molitrix* (Silver carp) stored under frozen conditions at -12±2°C.
Fig 3: Proximate composition of raw muscle of *Wallago attu* stored under frozen conditions at -12±2°C.

Fig 4: Percent decrease in proximate composition of raw muscle of *Wallago attu* stored under frozen conditions at -12±2°C.
Fig 5(a): Protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Figure 5(a): Protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.](image)

Fig 6(a): Percental decrease in Protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Figure 6(a): Percental decrease in Protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.](image)
Fig 5(b): Lipid content of muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing lipid content over time for different concentrations of citric acid.](image)

Fig 6(b): Percental decrease in lipid content of muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing percental decrease over time for different concentrations of citric acid.](image)
Fig 5(c): Ash content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2⁰C.

![Bar graph showing ash content over time and different concentrations of citric acid.](image)

Fig 6(c): Percental decrease in ash content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2⁰C.

![Graph illustrating percental decrease over time and different concentrations of citric acid.](image)
Fig 5(d): Moisture content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing moisture content](image)

Fig 6(d): Percental decrease in moisture content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing percental decrease](image)
Fig 5(e): Protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing protein content over time and different ascorbic acid concentrations.](image1)

Fig 6(e): Percental decrease in protein content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing percental decrease in protein content over time and different ascorbic acid concentrations.](image2)
Fig 5(f): Lipid content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing lipid content](image1)

Fig 6(f): Percental decrease in lipid content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing percental decrease](image2)
Fig 5(g):  Ash content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

Fig 6(g):  Percental decrease in ash content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.
Fig 5(h): Moisture content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing moisture content over time for different ascorbic acid concentrations.]

Fig 6(h): Percental decrease in moisture content of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing percental decrease over time for different ascorbic acid concentrations.]

- 0.3%AA
- 0.5%AA
- 0.7%AA
Fig 7(a): Protein content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at $-12\pm2^\circ$C.

Fig 8(a): Percental decrease in protein content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at $-12\pm2^\circ$C.
Fig 7(b): Lipid content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

Fig 8(b): Percental decrease in lipid content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.
Fig 7(c): Ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph depicting ash content changes](image)

Fig 8(c): Percental decrease in ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph depicting percental decrease](image)
Fig 7(d): Moisture content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Moisture content graph](image)

Fig 8(d): Percental decrease in moisture content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Percentage decrease graph](image)
**Fig 7(e):** Protein content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing protein content over time](image1.png)

**Fig 8(e):** Percental decrease in protein content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.

![Graph showing percental decrease](image2.png)
Fig 7(f): Lipid content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at \(-12\pm2^\circ\text{C} \). 

![Graph showing lipid content over time for different concentrations of ascorbic acid.]

Fig 8(f): Percental decrease in lipid content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.

![Graph showing percental decrease in lipid content over time for different concentrations of ascorbic acid.]

[Data Table]

<table>
<thead>
<tr>
<th>Concentration (AA)</th>
<th>0 day</th>
<th>10th day</th>
<th>20th day</th>
<th>30th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3%AA</td>
<td>4.19</td>
<td>3.70</td>
<td>3.12</td>
<td>2.25</td>
</tr>
<tr>
<td>0.5%AA</td>
<td>4.24</td>
<td>3.82</td>
<td>3.17</td>
<td>2.58</td>
</tr>
<tr>
<td>0.7%AA</td>
<td>4.26</td>
<td>3.86</td>
<td>3.20</td>
<td>2.62</td>
</tr>
</tbody>
</table>

[Graph showing percental decrease over time for different concentrations of ascorbic acid.]

- 0.3%AA
- 0.5%AA
- 0.7%AA
Fig 7(g):  Ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Bar chart showing ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.]

Fig 8(g):  Percental decrease in ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.

![Line graph showing percental decrease in ash content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.]
Fig 7(h): Moisture content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Bar chart showing moisture content of muscle over time and different ascorbic acid concentrations.]

Fig 8(h): Percental decrease in moisture content of muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions.

![Line graph showing percental moisture content decrease over time and different ascorbic acid concentrations.]

% Moisture Content:
- **0.3% AA**: 81.5, 80.25, 81.88, 80.42
- **0.5% AA**: 81.8, 79.12, 79.24, 79.22
- **0.7% AA**: 81.85, 76.95, 77.36, 77.35
**Fig 9:** Proximate composition of muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.

**Fig 10:** Percental decrease in proximate composition of muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.
Fig 11: Proximate composition of muscle of *Wallago attu* treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.

Fig 12: Percental decrease in proximate composition of muscle of *Wallago attu* treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.
Fig 13: Chemical changes in raw muscle of *Hypophthalmichtys molitrix* (Silver carp) stored under frozen conditions at -12±2°C.

![Graph showing chemical changes in raw muscle of *Hypophthalmichtys molitrix* over time.]

Fig 14: Chemical changes of raw muscle of *Wallago attu* stored under frozen conditions at -12±2°C.

![Graph showing chemical changes in raw muscle of *Wallago attu* over time.]

**Graph Notes:**
- **TBA** (Total Basic Ashes)
- **FFA** (Free Fatty Acids)
- **pH**
Fig 15 (a): TBA percentage in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

Fig 16 (a): TBA percentage in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.
Fig 15 (b): TBA percentage in the muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

Fig 16 (b): TBA percentage in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.
Fig 15 (c): FFA percentage in the muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

Fig 16 (c): FFA percentage in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.
Fig 15 (d): FFA percentage in the muscle of *Hypophthalmichthyss molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

Fig 16 (d): FFA percentage in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.
Fig 15 (e): pH in the muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Bar Chart](image)

Fig 16 (e): pH in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Bar Chart](image)
Fig 15 (f): pH in the muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

Fig 16 (f): pH in the muscle of *Wallago attu* treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.
Fig 17: Chemical composition of muscle of *Hypophthalmichtys molitrix* (Silver carp) treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.

![Bar chart for Fig 17](image)

Fig 18: Chemical composition of muscle of *Wallago attu* treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.

![Bar chart for Fig 18](image)
Fig 19: Bacteriological changes in raw muscle of *Hypophthalmichtys molitrix* (Silver carp) stored under frozen conditions at -12±2°C.

Fig 20: Bacteriological changes in raw muscle of *Wallago attu* stored under frozen conditions at -12±2°C.
Fig 21 (a): TPC changes in the muscle of Hypophthalmichthys molitrix (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

Fig 22 (a): TPC changes in the muscle of Wallago attu treated with different concentrations of citric acid and stored under frozen conditions at -12±2°C.
Table 21(b): TPC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing TPC changes in muscle of Hypophthalmichthys molitrix](image1)

**Fig 22 (b):** TPC changes in the muscle of *Wallago attu* treated with different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing TPC changes in muscle of Wallago attu](image2)
Fig 21(c): CC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing CC changes in Hypophthalmichthys molitrix muscle over time for different citric acid concentrations.]

Fig 22 (c): CC changes in the muscle of *Wallago attu* treated with different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing CC changes in Wallago attu muscle over time for different citric acid concentrations.]

Fig 21(d): CC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing CC changes in the muscle of Hypophthalmichthys molitrix](image)

Fig 22 (d): CC changes in the muscle of *Wallago attu* treated with different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing CC changes in the muscle of Wallago attu](image)
Fig 21(e):  PC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing PC changes in Hypophthalmichthys molitrix muscle](image)

Fig 22 (e):  PC changes in the muscle of *Wallago attu* treated with different concentrations of citric acid and stored under frozen conditions at -12±2°C.

![Graph showing PC changes in Wallago attu muscle](image)
Fig 21(f): PC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing PC changes in Hypophthalmichthys molitrix](image1)

Table 22 (f): PC changes in the muscle of *Wallago attu* treated with different concentrations of ascorbic acid and stored under frozen conditions at -12±2°C.

![Graph showing PC changes in Wallago attu](image2)
Fig 23:  Bacteriological changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.

Fig 24:  Bacteriological changes in the muscle of *Wallago attu* treated with aqueous solutions of 0.5% citric acid and ascorbic acid (1:1) and stored under frozen conditions at -12±2°C.
Fig 25 (a): TPC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with different concentrations of aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.

Table 26 (a): TPC changes in the muscle of *Wallago attu* treated with aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.
Fig 25 (b): CC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with different concentrations of aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.

Table 26 (b): CC changes in the muscle of *Wallago attu* treated with aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.
Fig 25 (c): PC changes in the muscle of *Hypophthalmichthys molitrix* (Silver carp) treated with different concentrations of aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.

![Bar chart showing PC changes in Hypophthalmichthys molitrix](image)

Fig 26(c): PC changes in the muscle of *Wallago attu* treated with aqueous solutions of Potassium sorbate and stored under frozen conditions at -12±2 °C.

![Bar chart showing PC changes in Wallago attu](image)
Table 27 (a): Sensory scores of muscles of Hypophthalmichthys molitrix treated with 0.5% Citric acid and Ascorbic acid (1:1).

Table 27 (b): Sensory scores of muscles of Wallago attu treated with with 0.5% Citric acid and Ascorbic acid (1:1).
Fig 28 (a): Sensory scores of muscles of *Hypophthalmichthys molitrix* treated with 5% Antimicrobial (Potassium sorbate).

Fig 28 (b): Sensory scores of muscles of *Wallago attu* treated with 5% Antimicrobial (Potassium sorbate).
Fig 29: Proximate composition of fish cutlets of *Hypophthalmichthys molitrix* (Silver carp) stored under frozen conditions at -12±2 °C.

![Proximate composition of fish cutlets of Hypophthalmichthys molitrix (Silver carp) stored under frozen conditions at -12±2 °C.](image)

Fig 30: Percental decrease in proximate composition of fish cutlets of *Hypophthalmichthys molitrix* (Silver carp) stored under frozen conditions at -12±2 °C.

![Percental decrease in proximate composition of fish cutlets of Hypophthalmichthys molitrix (Silver carp) stored under frozen conditions at -12±2 °C.](image)
Fig 31: Proximate composition of fish cutlets of *Wallago attu* stored under frozen conditions at -12±2 °C.

![Proximate composition chart](chart1.png)

Fig 32: Percent decrease in proximate composition of fish cutlets of *Wallago attu* stored under frozen conditions at -12±2 °C.

![Percent decrease chart](chart2.png)
Fig 33: Chemical composition of fish cutlets of *Hypophthalmichthys molitrix* (Silver carp) stored under frozen conditions at -12±2 °C.

Fig 34: Chemical composition of fish cutlets of *Wallago attu* stored under frozen conditions at -12±2 °C.
Fig 35: Bacteriological changes in fish cutlets of *Hypophthalmichthys molitrix* (Silver carp) stored under frozen conditions at -12±2 °C.

Fig 36: Bacteriological changes in fish cutlets of *Wallago attu* stored under frozen conditions at -12±2 °C.
Fig. 37 (a): Proximate composition of Veg noodles (Control) stored at ambient temperature (28°C).

![VEG NOODLES Pie Chart]

Fig. 37 (b): Proximate composition of Fish noodles stored at ambient temperature (28°C).

![FISH NOODLES Pie Chart]
Fig 38 (a): Chemical changes in Veg noodles (control) stored at ambient temperature (28°C).

Fig 38 (b): Chemical changes in Fish noodles stored at ambient temperature (28°C).
Fig 39: Sensory scores of raw fish muscle of *Hypophthalmichthys molitrix* (H<sub>R</sub>) stored at -12° C.

![Graph showing sensory scores of raw fish muscle of *Hypophthalmichthys molitrix* (H<sub>R</sub>) stored at -12° C.](image)

Fig 40: Sensory scores of raw fish muscle of *Wallago attu* (W<sub>R</sub>) stored at -12° C.

![Graph showing sensory scores of raw fish muscle of *Wallago attu* (W<sub>R</sub>) stored at -12° C.](image)
Fig 41: Sensory scores of fish cutlets of *Hypophthalmichthys molitrix* stored at -12° C.

Fig 42: Sensory scores of fish cutlets of *Wallago attu* stored at -12° C.
Fig 43: Sensory scores of Veg noodles (control) stored at ambient temperature (28°C).

![Graph showing sensory scores of Veg noodles stored at ambient temperature.](image)

Fig 44: Sensory scores of Fish noodles (made from the mince of *Wallago attu*) stored at ambient temperature (28°C).

![Graph showing sensory scores of Fish noodles stored at ambient temperature.](image)