Abstract
One of the major sea foods that decorate worldwide table are prawns and shrimps. The three different types of prawns selected were *Penaeus indicus*, *Penaeus monodon* and *Acetes indicus*. Edible part of the prawns were collected and classified into two categories i.e., fresh and cooked. Moisture content, Carbohydrate, protein and lipid profile were analyzed to identify their nutrient value. Highest protein profile was observed in *Acetes indicus* and *Penaeus monodon* than *Penaeus indicus*. Fresh edible muscles showed more nutrients than the cooked muscles. Carbohydrate contents were more in *Penaeus indicus*. The cooked muscle of *Penaeus monodon* showed maximum level of carbohydrate level than other cooked edible muscles. The highest level of lipids was present in *Acetes indicus* fresh edible muscle than other prawns. The greatest altitude of lipids was noted in the cooked muscle of *Penaeus indicus* than other cooked muscles.
1. Introduction

Shrimp is one of the delicious seafoods all over the world. Food helps human beings to maintain good health by providing all essential nutrients consuming a variety of foods in balanced proportions, and will prevent deficiency diseases and chronic diet-related disorders. Fresh and clean shrimps can be served either cooked or uncooked with sauce. From a nutritional standpoint, shrimps are high in protein, low in saturated fat and calories, and have a natural flavor. Due to these characteristics, shrimps form a natural additive in salads, pastas, curry, soups and some fried dishes. Shrimps identified as a rich source of vitamin-B12, Selenium, ω-3 highly unsaturated fatty acids (HUFA) and astaxanthin, a potent natural antioxidant. Despite the several nutritional parameters of shrimp based on which it can be considered as a healthy food, there is reluctance among dieticians and health professionals as well as consumers because of its relatively higher cholesterol.

Carbohydrates perform numerous roles in living organisms. The related deoxyribose is a component of DNA. Saccharides and their derivatives include many other important biomolecules that play key roles in the immune system, fertilization, preventing pathogenesis, blood clotting and development. Proteins are essential nutrients for the human body. They are one of the building blocks of body tissue, and can also serve as a fuel source. Fats or lipids are the third main class of the macro nutrients needed in human nutrition. The lipids are found primarily in meats and dairy foods, at least, these are the most visible sources, but most food contain some fat.

Fats are an important component of our diet, and at least a minimum intake is essential. However, many problems are associated with excessive intake of dietary fat, including obesity, cardio-vascular disease, and some forms of cancer. *Penaeus monodon* is the second most widely cultured prawn species in the world. In 2010, Greenpeace added *Penaeus monodon* to its sea food red list “a list of fish that are commonly available in all places and which have a very high risk of being sourced from unsustainable fisheries. Hence a study was planned this methods.

2. Materials And Method

i. Shrimps were collected from water sources near Thanjavur at Tamil Nadu.

ii. Extracts were prepared and kept on the refrigerator for further analysis.

iii. The Carbohydrate content measured by Anthrone method (Hedge et al., 1962)

iv. The total protein of prawn were analysed by Lowry’s method (Lowry et al., 1951)

v. The lipids content can be measured by Cox and Pearlson method.

3. Results and Discussion

Analysis of proximate composition and protein profile of fresh and cooked flesh in some Indian prawns were made in the study.

- **Moisture content**

The fresh and cooked flesh of some Indian prawns the moisture content was estimated. The investigated results were presented in Table. The maximum level of moisture content was present in *Penaeus monodon* and *Penaeus indicus* (86±1.00 %) cooked edible muscle and less is *Acetes indicus* (79± 250 %). The cooked muscles maximum level of moisture was presented compare than fresh some India prawns.

- **Carbohydrate**

The maximum level of carbohydrate was presented in *Penaeus indicus* fresh edible muscle (184±3.50 mg/g) compare than other prawns such as *Penaeus monodon* and *Acetes*
**indicus** (167±2.50 and 146±3.10 mg/g). The cooked muscle of *Penaeus monodon* (353±1.75 mg/g) was noted maximum level of carbohydrate level compare other cooked edible muscles.

- **Total Protein**
The highest level of protein was presented in *Acetes indicus* (241±1.75 mg/g) and *Penaeus monodon* (240±1.55 mg/g) fresh edible muscle compare than *Penaeus indicus* (221±2.10 mg/g). Similarly the cooked edible muscle of *Acetes indicus* (309±2.75 mg/g) and *Penaeus monodon* (301±1.20 mg/g) utmost intensity of protein was noted compare than *Penaeus indicus* (282±3.50 mg/g).

- **Lipids**
The prepared fresh and cooked edible muscle of some Indian prawn’s lipids level was estimated. The utmost level of lipids was presented in *Acetes indicus* (2.805±0.75 mg/g) fresh edible muscle compare than *Penaeus monodon* (2.244±2.245 mg/g) and *Penaeus indicus* (1.683±0.18 mg/g). The cooked muscle of *Penaeus indicus* (2.805±0.58 mg/g) maximum level of lipids was noted compare than other cooked muscle. The all cooked edible muscles maximum level of lipids was noted except *Penaeus monodon*.

### Table 1: Comparison Of The Some Indian Prawns

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Profile</th>
<th>Penaeus monodon</th>
<th>Penaeus indicus</th>
<th>Acetes indicus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fresh muscle</td>
<td>Cooked muscle</td>
<td>Fresh muscle</td>
<td>Cooked muscle</td>
</tr>
<tr>
<td></td>
<td>Moisture Content (%)</td>
<td>64±2.00</td>
<td>86±1.00</td>
<td>62±1.50</td>
</tr>
<tr>
<td>2</td>
<td>Carbohydrate (mg/g)</td>
<td>167±2.50</td>
<td>353±1.75</td>
<td>184±3.50</td>
</tr>
<tr>
<td>3</td>
<td>Protein (mg/g)</td>
<td>240±1.55</td>
<td>301±1.20</td>
<td>221±2.10</td>
</tr>
<tr>
<td>4</td>
<td>Lipid (mg/g)</td>
<td>2.244±0.40</td>
<td>2.244±2.245</td>
<td>1.683±0.18</td>
</tr>
</tbody>
</table>

### 4. Discussion

In the present study analysis of proximate composition and protein profile of fresh and cooked flesh some in Indian prawns were made. The investigated results were discussed with theoretical and bio statistical analysis.

Seafood in general, prawns and shrimps in particular, are highly nutritious with good source of protein and amino acids. The fiber in prawns has a nutritional advantage in that it will assist in reducing constipation and other attendant problems in human consumers. The nutritive values of crustaceans depend upon their biochemical composition, such as protein, amino acids, lipid, fatty acids, carbohydrate, vitamins and minerals. In the present study maximum level of moisture content was present in *Penaeus monodon* and *Penaeus indicus* (86±1.00 %) cooked edible muscle and less is *Acetes indicus* (79± 250 %).

Prawns contain good amount of organic and inorganic constituents. In addition to that prawns also contain a significant proportion of minerals (Ca, P, Mg, Mn and Cl) and vitamins (A, C and D) (Abulude et al., 2006). The proximate body composition including moisture, fat, protein and ash are good indicators of physiological condition of an organism. The greater the protein and lipid content represents higher the energy density (Dempson et al. 2004). However, quantities of these constituents vary considerably within and between species, size, sexual condition, feeding season
and physical activity (Rosa and Nunes, 2003; Nargis, 2006). The present investigation highest level of protein was presented in Acetes indicus (241±1.75 mg/g) and Penaeus monodon (240±1.55 mg/g) when compared with the fresh edible muscle compare of Penaeus indicus(221±2.10 mg/g).

Similarly the cooked edible muscle of Acetes indicus (309±2.75 mg/g) and Penaeus monodon (301±1.20 mg/g) utmost intensity of protein was noted than Penaeus indicus (282±3.50 mg/g). Cooked edible muscles of all prawns showed maximum level of protein when compare of with fresh edible muscles. Similar findings were recorded by Silva and Chamul (2000), Sriraman (1978), Nair and Prabhu (1990), Reddy and Shanbhogue (1994), Ravichandran (2000).

Protein is essential for normal function, growth and maintenance of body tissues. Its content is considered to be an important tool for the evaluation of physiological standards (Bhavan et al., 2010). The high protein level in fresh and cooked edible muscles of P indicus in the present study indicates their high nutritive value.

Protein exist both in free and in bound state along with proteins as protein–bound sugars and glycogen. The high level of carbohydrate in the muscle is found in Penaeus indicus in fresh and Penaeus monodon cooked prawns. According to the study of Abdel-Salam et al., (2012) the edible muscles of males marine prawns shown significantly higher carbohydrate values than in females..

Lipids displayed more or less similar percentages in muscles of both sexes of P. indicus. While, these recorded values were lower than in edible muscles of crustances species (Bhavan et al., 2010). According to (Kuzumi, 2012) lipids are highly efficient as sources of energy and they contain twice the energy of carbohydrates and proteins. As a general rule, they act as major food reserve along with protein and are subject to periodic fluctuations influenced by environmental variables like temperature (Nagabhushanam, 2000).

Lipids are the best source of energy producers of the body through metabolism. They provides a source of indispensable nutrients and act as carriers of certain nonfat nutrients, notably the fat soluble vitamins like A, D, E and K (New, 1986; Richardo et al. 2003). In the present study, utmost level of lipids was presented in Acetes indicus fresh edible muscles of Penaeus monodon and Penaeus indicus. Generally, the muscle of the prawn contained lower quantity of lipid (Bhavan et al. 2008; Bhavan, 2009). Therefore, prawns and other sea foods are preferred by the consumer. Lipids also form a major component of yolk in decapod crustaceans. The majority of lipids stored in oocytes are derived from extraneous sources, particularly the hepatopancreas (Varadarajan and Subramoniam, 1982). Lipids are the precursors of endocrine hormones. In this investigation cooked muscle of Penaeus indicus (2.805±0.58 mg/g) maximum level of lipids was noted compared to other cooked muscle. Maximum level of lipids was noted in allcooked edible muscles except Penaeus monodon. In the present study, the level of total lipid was found to higher in Acetes indicus prawns when compared to the other prawns.

References


