

# Seasonal Biochemical Constituent Variations in Shrimps of Genus (*Fenneropenaeus*) In Different Coastal Waters of Pakistan

Syeda Hadiqa Noor\*, Noor Us Saher

Centre of Excellence in Marine Biology, University of Karachi

\*E-mail: syedahadiqa@gmail.com

## ABSTRACT

---

In recent time, the seafood proved as an aid to relieve the food shortage in many developed countries by supplying useful nutritional dietary supplements. The market for direct consumption of seafood has also risen as demonstrated by the firm increase in seafood consumption throughout the world. The information of proximate composition of sea food item provide insight towards the suitable consumption means of shrimp for the uptake of nutritive essentials for the human body.

**Keywords:** Shrimp, Sea food, proximate composition, Protein

---

## INTRODUCTION

Seafood contributed more than 17 percent of animal protein as intake throughout the world. In certain nations, this share also exceeds more than 50 percent, (FAO, 2014). Currently, seafood has helped to relieve the food shortage in many developed countries by supplying useful nutritional dietary supplements and the market for direct consumption of seafood has also risen, as demonstrated by the steady rise in seafood consumption worldwide (FAO, 2018). Furthermore, the readily digestible essence of protein from fish and shellfish means that a high proportion of nutrients are consumed and not lost by the user. To determine the proximate composition of seafood species is increasing and now become a global concern due to its potential significance, influence and benefits to human health.

## OBJECTIVES

This study investigated the seasonal variation of proximate biochemical nutritive constitute as an indicator of habitat quality and individual condition in a commercially important marine shrimp genus, *Fenneropenaeus*, from four different coastal waters of Pakistan.

## MATERIAL AND METHODS

The tissue muscles of shrimps were examined during a period of 2 continuous (2017-2018) years. A total of 445 specimens belongs to four different species of Genus *Fenneropenaeus* were collected from different fishing spots; Keti bander (Male=23; Female=30), Sonmiani (Male = 68; Female = 71), Korangi (Male = 77; Female = 70) and Karachi fish harbors (Male: = 63; Female = 43). The standard techniques were adopted for the determination of chemical constituents was detected by following. Lowry et al. (1951); the Folin-Ciocalteu phenol method was implemented for the total proteins estimation in the tissue, for carbohydrate Dubois et al. (1956) was followed and the lipid content was examined by the Folch et. al. (1956).

## RESULTS

The concentrations of total proteins, lipids, carbohydrates, moisture, dry matter, and edible meat in the muscle showed high significant differences among the species of *Fenneropenaeus* (P-Value < 0.001). The protein contents in genera *Fenneropenaeus*, shrimp meat was the highest in *F. indicus* (mean =  $31.62 \pm 8.1$  mg/ml), Carbohydrates content in *F. penicillatus* (mean =  $2.27 \pm 1.45$  mg/ml), total lipids in *F. indicus* (mean =  $6.97 \pm 4.05$  %), moisture content in *F. indicus* (mean =  $78.636 \pm 6.507$  %), percentage of total edible meat in *F. indicus* (mean =  $51.119 \pm 7.371$  %), Percentage of dry matter in *F. indicus* (mean =  $31.62 \pm 8.1$  mg/ml).

## CONCLUSION

In individual species, the highly significant (P < 0.001) variations in proximate composition, the percentage of lipid, carbohydrates and edible meat were observed during all the seasons and at different locations as well. These results also suggest that utilization of shrimp's meat can be one of the ways of the human uptake of nutritive essentials for the body in various seasons.

## ACKNOWLEDGMENT

This work is funded by Higher Education Commission (HEC) of Pakistan, through NRPDU: 4530/R & D to NUS which is highly acknowledged.

## REFERENCES

1. Dubois, Michel, et al. "Calorimetric Method for Determination of Sugar and Related Substances." *Analytical Chemistry* 28.3 (1956): 350-356.
2. Bianchi, M. C. G., et al. "FAO: the state of world fisheries and aquaculture." Food and Agriculture Organization of the United Nations: Rome, Italy (2014): 1-230.
3. Ethiopia, F. A. O. "Report on Feed Inventory and Feed Balance." FAO: Rome, Italy (2018).
4. Folch, Jordi, Mark Lees, and Gerald H. Sloane Stanley. "A simple method for the isolation and purification of total lipids from animal tissues." *J. Biol. Chem.* 226.1 (1957): 497-509.
5. Lowry Oliver H, et al. "Protein measurement with the Folin phenol reagent". *J. Bio. Chem.* 193 (1951): 265-275.