

## ABSTRACT

Shrimp is an important aquaculture product use as food by human beings. In this study we analyzed and compare the nutritional value of the three economically significant shrimp species (*Penaeus merguensis*, *Penaeus monodon*, *Penaeus indicus*). We analyzed their proximate composition, fatty acid profile, amino acid profile and mineral content. The proximate composition analysis showed that the *Penaeus monodon* had significantly higher concentration of the crude protein, crude fat and ash followed by the *Penaeus merguensis* and *Penaeus indicus*. The fatty acid profile analysis revealed the presence of thirty different fatty acids. All the shrimps had the highest concentration of saturated fatty acids followed by the concentration of the polyunsaturated fatty acids and monosaturated fatty acids. In general, *Penaeus monodon* had the highest content of fatty acids compared to the other two species. The amino acid profile analysis confirmed the presence of the seventeen amino acids which include nine essential and eight non-essential amino acids. The relative content of the amino acids varied slightly but their difference was not statistically significant. Moreover, the ratio of essential amino acids to the non-essential amino acids and the ratio of the essential amino acids to the total amino acids was above 0.6 and 0.4 respectively, which confirmed that all the shrimps had high quality protein. Their mineral content analysis revealed the presence of calcium, sodium, potassium, magnesium, zinc, iron and manganese in all the shrimp species. However, the *Penaeus monodon* had significantly high concentration of the calcium, potassium, magnesium and zinc while *Penaeus indicus* had the significantly higher concentration of the sodium, manganese and iron. This study concluded that each shrimp species had the unique nutritional value and the component nutrients, but the *Penaeus monodon* had particularly high nutritional value. Even though the nutrient content of the three economically significant shrimp species of Pakistan varies among each other but all the species understudy had necessary nutrients and should be used as an enriched source of nutrition for the humans.

**Key words:** *Penaeus merguensis*, *Penaeus monodon*, *Penaeus indicus*, nutritional value, proximate composition, fatty acids profile analysis, amino acids profile analysis, mineral content analysis.