



CMFRI SPECIAL PUBLICATION

Number 7

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CRUSTACEAN BIOCHEMISTRY AND PHYSIOLOGY**

Issued on the occasion of the *Workshop on
CRUSTACEAN BIOCHEMISTRY AND PHYSIOLOGY*
jointly organised by
the *Department of Zoology, University of Madras* and
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Manual of Research Methods for Crustacean Biochemistry and Physiology

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A perusal of previous literature on the biochemistry of crustaceans would reveal a remarkable intra-specific variability in biochemical composition of tissues. A critical assessment of factors responsible for biochemical variability of tissues of individual species is necessary, in order to understand the physiological role of the biochemical components in question. Halberg (1973) has broadly classified the factors influencing individual biochemical variability as inter-individual and intra-individual. The inter-individual factors would include sex, size, moulting, nutritional and reproductive status in addition to pathological and environmental conditions. The intra-individual factors which may bring about biochemical variability include techniques and time of day.

Williams (1956) while studying biochemical individuality of organisms has pointed out that most of the data showing biochemical variability could be explained in terms of poor performance of methods used in collection of data. Therefore, he suggests that before interpreting any individual variation in the biochemical components, the result of repeated samples has to be analysed from the same individual.

There is always a need to estimate the reliability of the results of biochemical measurements. Two aspects of reliability are precision and accuracy (Strobel, 1965). Precision is a measure of degree of reproducibility of the biochemical measurement. This also depends on selecting a suitable method for biochemical analysis.

Often one may note that the crustacean investigators employ the quantitative methods chiefly borrowed from mammalian

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tissue analysis. It is now fairly evident from the existing literature that the chemical components of the crustacean tissues differ profoundly from those of mammalian tissues and that analytical methods developed for the latter are often inadequate to cope up with the complexities of crustacean tissues.

Accuracy is often defined as the measure of the closeness of a result to the 'true' or accepted value. In order to accurately assess the normal biochemical composition of an individual crustacean, one has to control suitably both inter and intra-individual variabilities. In the following chapters the suitability of a particular method for analysing the biochemical constituents of crustacean tissue is empirically assessed.

1.1 REFERENCES

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