



CMFRI SPECIAL PUBLICATION

Number 7

**MANUAL OF RESEARCH METHODS FOR
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
the **Centre of Advanced Studies in Mariculture,
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Manual of Research Methods for Crustacean Biochemistry and Physiology

EDITED BY

M. H. RAVINDRANATH

*School of Pathobiology, Department of Zoology,
University of Madras, Madras 600 005*



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Correlation coefficient (r) is an index of association between continuous variables. The coefficient ' r ' may have values ranging from $+1$ to -1 . $r = +1$ corresponds to a rectilinear relationship (of the form $y = a + bx$) in which the two variables are positively related. $r = -1$ corresponds to a rectilinear relationship (of the form $y = a - bx$) in which the two variables are negatively related. Values of ' r ' near $+1$ (or -1) indicate an approach to a rectilinear relationship. But intermediate values of ' r ' are more difficult to interpret (Parker, 1973). Values of ' r ' near zero may arise under two conditions: 1. when there is no relationship and 2. when there is a real relationship but it is curvi-linear.

Therefore, prior to estimating ' r ', a scatter diagram is prepared to assess whether the distribution of the data is bivariate normal. Although ' r ' provides a measure of association between variables it does not in itself indicate the significant level of any association. When ' r ' is small, there is a possibility of obtaining ' r ' value deviating markedly from zero because of accidental 'covariation' in the few pairs of values involved. Therefore, it is necessary to test the significance of any deviation of the calculated value of ' r ' from zero (which is given in correlation coefficient table).

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n} \right] \left[\sum y^2 - \frac{(\sum y)^2}{n} \right]}}$$

* Prepared by P. Mullainadhan, School of Pathobiology, Department of Zoology, University of Madras, Madras-600 005.

For your own notes

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