

abnormal vibration characteristics are important factors in the establishment of the malignant state.

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## FECUNDITY OF MAYFLIES OF WESTERN GHATS OF PENINSULAR INDIA

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FECUNDITY is the total number of eggs produced by the female during her life span regardless of the fate

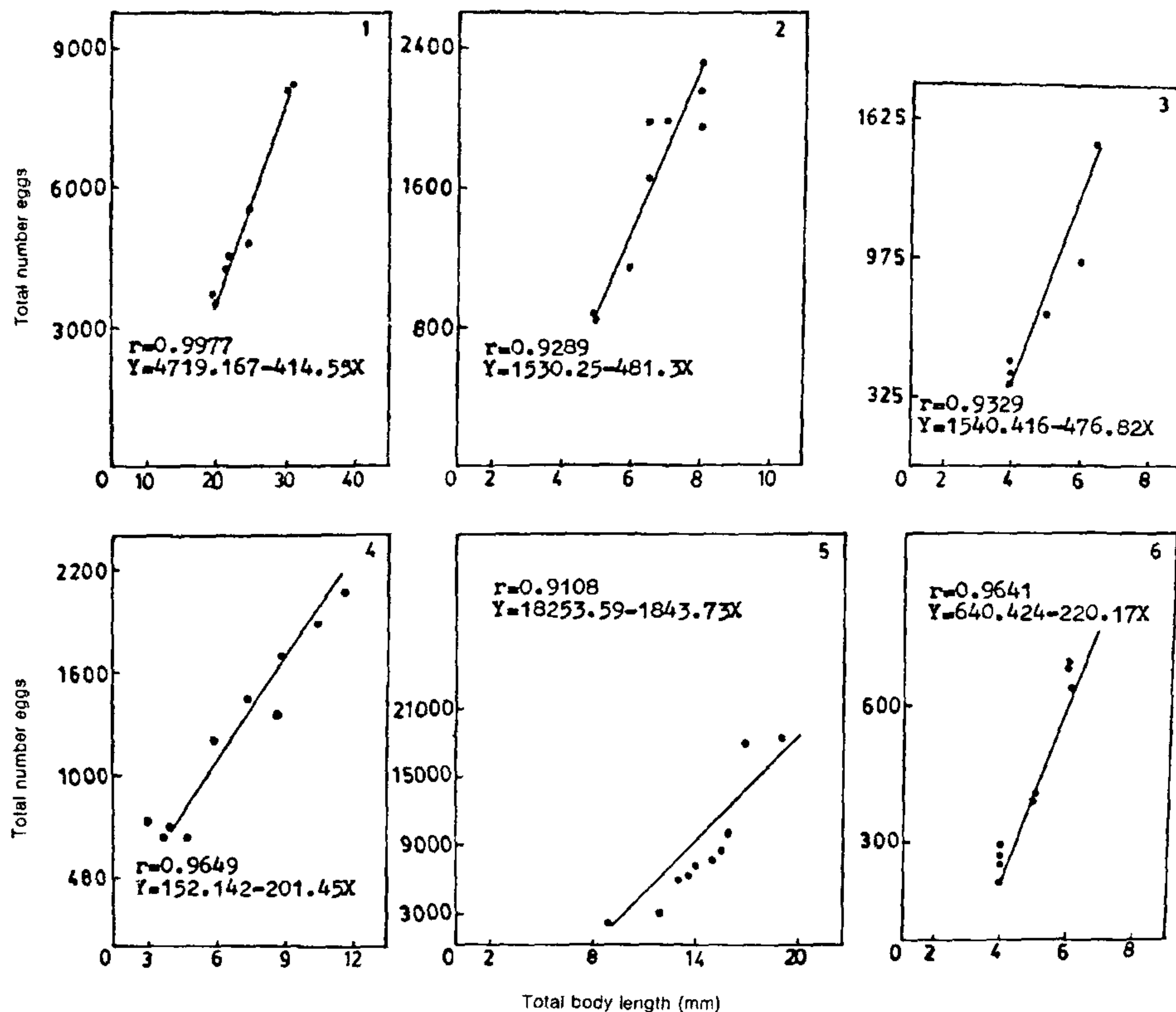
of the eggs. For most insect groups, it is difficult to measure fecundity accurately in their natural environment because the eggs are continually maturing and are oviposited throughout the life span. Mayflies are excellent material for the study of fecundity under natural conditions. Adult mayflies usually live for only a day or two and all the eggs are produced prior to the subimago stage and the total potential fecundity can be determined accurately by examining subimagos, imagos that have not oviposited, and even last instar nymphs<sup>1</sup>.

Mayfly fecundity has been correlated positively with body length<sup>1-5</sup>. A more meaningful calculation for making comparisons between species would be the relationship between egg production and unit body length. In the present study, six families of Ephemeroptera were chosen and the relationship between their egg production and unit body length was analysed. Eggs from the abdominal and thoracic body cavities of the last instar (with darkened wing pad) nymphs of mayflies were removed to a Sedgwick rafter and counted. The relationship between fecundity and body length was statistically analysed.

The correlation between the number of eggs produced by six families of Ephemeroptera and their body length is presented in figures 1-6. The average number of eggs per mm of body length in the six families ranged from 201 to 1843. The data of Clifford and Boerger<sup>1</sup> for Bigory River mayflies of Canada, of Hunt<sup>2</sup> and Britt<sup>3</sup> for Ephemeridae, and of Minshall<sup>6</sup> for Heptageniidae were 137-222 eggs/mm, 300-350 eggs/mm and 100-200 eggs/mm respectively.

In the present study the  $r$  value which ranged from 0.90 to 0.99 (highly significant) confirms the general view that fecundity increases with increasing body length of the nymphs. However, Minshall<sup>6</sup> found that beyond a certain size (10.5 mm) the number of eggs decreased with increasing size of the individual. This apparent decline in egg number with increasing body size (up to 31 mm in Ephemeridae) has not been observed in the present study.

Though the nymphs of Ephemeridae are the longest among the members of the six families under investigation, the rate of egg production is high (1843 eggs/mm) only in Heptageniidae. The ephemerids are burrowing and sandy forms whereas heptageniids are rheophilic and are restricted to torrential areas of rock-bottomed streams. This difference in ecology should account for production, in heptageniids, of more eggs as a compensatory measure for the loss of eggs washed away by torrents.



Figures 1-6. Correlation and regression values between the number of eggs and body length in 1, Ephemeridae; 2, Ephemerellidae; 3, Caenidae; 4, Leptophlebiidae; 5, Heptageniidae; 6, Baetidae.

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## CRYSTAL STRUCTURE OF PUTRESCINE-GLUTAMIC ACID COMPLEX

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POLYAMINES are ubiquitous organic amines found in all living cells. Although their precise biological function is unknown, their importance in the life cycle of cells is reflected in the precise control mechanisms that have evolved to regulate polyamine