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3rd International Conference & Exhibition on
Biometrics & Biostatistics

October 20-21, 2014 DoubleTree by Hilton Baltimore - BWI Airport, USA

Application of regression analysis for determining the third dimension of the microfossil specimens embedded in permineralized cherts from the Deccan intertrappean beds of India

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The Deccan intertrappen cherts show extremely well-preserved plant specimens of almost any part of the diverse groups of plants. While studying suchspecimens of *Azolla* from MohagaonKalan (Madhya Pradesh), India, the author was interested in finding the total number of microspores embedded in the massulae per microsporangium, and also the size of the various parts that could be found. The method, author used was Peel method of serial sectioning without grinding the specimen for the simple reason that grinding would have lost the precious fossil specimen/s. By applying the Regression and Correlation analysis the authordevised the method to successfully reach the desired goal in my mind. For the purpose one of the pieces of a chertfrom the same locality with the same type and took serial sections from a particular region without grinding after every peel section. The chert was etched with hydrofluric acid for an approximate time of about 45 sec between each peel section. The chert was washed in an indirect gentle flow of tap water, dried and a thin coat of viscous peel solution was pored over the etched area (about 1sqcm), which was allowed to dry and the peel taken out. From the number of peels which were taken from that chert; it was tried to correlate the number of peels and the depth of the chert because successive etching needed to take a peel at a time.By applying the linear regression equation for the straight line the values for the two constants' a' and 'b' were found and by putting the value of number of peels, the third dimension i.e., the depth of the chert, the embedded part of the specimencould be found.$\hat{Y}=a+bX$, where $\hat{Y}$=estimated third dimension;aand b=the constants and X=Number of peels.Once the third dimension of the embedded part of the plant specimen was found in the chert, the equation to even find out the total number of microspores in a sporangium from the serial peel sections of the microsporocarp too could be easily applied.

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J Biom Biostat 2014
ISSN: 2155-6180, JBB an open access journal

Biostatistics-2014
October 20-21, 2014

Volume 5, Issue 4

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