PALEONTOLOGICAL AND BIOSTRATIGRAPHICAL ANALYSIS OF THE FORT MUNRO FORMATION, RAKHI NALA, INDUS BASIN, PAKISTAN

Muhammad Hanif[a], Muhammad Rizwan[a], Nowrad Ali[b]

[a]National Centre of Excellence in Geology, University of Peshawar, Peshawar, Pakistan

[b]Department of Geology, University of Peshawar, Peshawar, Pakistan

(hanif.nceg@gmail.com)

ABSTRACT

A paleontological and biostratigraphical study on Orbitoides specimens collected from the Fort Munro Formation, Rakhi Nala Section, Lower Indus Basin, Pakistan was carried out. Paleontological investigations include the measurement of different biometric parameters and taxonomy (i.e. systematic description) of genus Orbitoides. The specimens are discoidal, lenticular, and symmetrically biconvex and their diameter range in size from 2mm to 6mm. Embryo is trilocular to quadrilocullar and the shape varies from spherical to elliptical. For biometric analysis, three peri-embryonic parameters (i.e., number of peri-embryonic chambers directly originating from embryo, total number of peri-embryonic chambers, initial growth steps (neanic stage)) and two embryonic parameters (i.e. size of the embryo and shape of the embryo) were measured. The number of peri-embryonic chambers directly originating from embryo range from 4 to 5, total number of peri-embryonic chambers range from 12 to 16, and the average initial growth steps range from 0.28 to 0.32. The relatively stable values or very small fluctuation in average initial growth stepsvalues show no positive progress in the nepionic acceleration from bottom to top of the Fort Munro Formation. The average size of embryo does not show a strong correlation with the average numbers of peri-embryonic chambers originating from embryo as the increase in size of embryo should be followed by the increase of embryonic chambers. Most of the specimens show the average embryo size and number of chambers directly originating from embryo values in the range of Orbitoides mediatherefore, the whole population is attributed to this species. Based on the correlation of Orbitoides mediaZone with the Globotruncana ventricosa Zone middle to late Campanian age of the Fort Munro Formation is proposed.

***Keywords**: Orbitoides, biometry, Fort Munro Formation, Indus Basin, Pakistan*