



**Figure 1.** Effect of 4,4'-sprio-6, 6-dimethyltetrahydropyrimidine-2-one (50 mg/kg) on haematology of frog. A = Effect on erythrocytes. B = Effect on leukocytes and thrombocytes. Values with asterisks are statistically (*t* test) different from controls. \* =  $P < 0.05$ ; \*\* =  $P < 0.01$ ; \*\*\* =  $P < 0.001$

lobin and induced marked macrocythemia indicating early denudeation<sup>6</sup>.

The compound (I) also produced an increase in weight of frogs. Whether this increase is due to water imbibition or increased protein or fat deposition is not clear from the present study. Detailed studies on the pharmacological effects on intermediary metabolism in rabbits are in progress.

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## RECENT FORAMINIFERA FROM OKHA BEACH SAND, GUJARAT STATE—A PRELIMINARY NOTE

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AMONGST marine micro-organisms, the foraminifera are excellent indicators of recent and geologically past environments. The ecology of the recent foraminifera has been studied in detail almost all over the world but it is still in a developing stage in this country. With the discovery of oil and gas in the off-shore Cenozoic strata of the country, the importance of recent foraminifera has increased; for not only do they provide precise age of these rocks but also help in the interpretation of their depositional environment. Hence, the current emphasis on the study of recent foraminifera in India is understandable.

The recent foraminifera of Indian coasts have been the concern of the Department of Geology, Aligarh Muslim University, Aligarh, for the last more than a decade. Under this research programme, several beaches of the east as well as west coast of India have been covered. The present paper deals with the preliminary results obtained from a study of recent foraminifera from the Okha beach sands, Western India, which, for the first time, deals with these micro-organisms from this area. The detailed investigation is in progress and will be published in due course.

Okha ( $69^{\circ}04'35''$ : $22^{\circ}28'30''$ ) is an intermediate port facing the Arabian Sea, in the State of Gujarat and has a long historical background. Samples of Okha beach sands were collected in February, 1984, for an extensive study concerning the taxonomy and ecology of recent foraminifera present therein.

As stated elsewhere, extensive work on the recent foraminifera has not been done in India. From the west coast, Kurian<sup>1,2</sup> was probably the first to study the recent foraminifera and was followed by several workers<sup>3-12</sup>.

During the course of the present investigation, a

total of the following eighteen species of recent foraminifera were recovered from the Okha beach sand: *Bathysiphon* sp indet., *Textularia foliacea* Heron-Allen and Earland, *Spiroloculina indica* Cushman and Todd, *Quinqueloculina (Miliola) kerimbatica* (Heron-Allen and Earland), *Q. seminulum* (Linné), *Triloculina terquemiana* (Brady), *T. trigonula* (Lamarck), *Bolivina striatula* Cushman, *Rectobolivina raphanus* (Parker and Jones), *Cancris auricula* (Fichtel and Moll), *Ammonia annectens* (Parker and Jones), *Pararotalia boltovskoyi* Jain and Bhatia, *Elphidium craticulatum* (Fichtel and Moll), *E. crispum* (Linné), *Poroepionides lateralis* (Terquem), *Amphistegina radiata* (Fichtel and Moll), *Cibicides lobatulus* (Walker and Jacob) and *Florilus scaphus* (Fichtel and Moll). Of these, *Quinqueloculina seminulum*, *Ammonia annectens*, *Pararotalia boltovskoyi*, *Elphidium craticulatum*, *E. crispum*, *Poroepionides lateralis* and *Cibicides lobatulus* are abundant; *Quinqueloculina (Miliola) kerimbatica*, *Rectobolivina raphanus* and *Amphistegina radiata* are frequent; and the remaining species are rare in our material. The specimens belonging to different species are of normal shape and size. The familywise break-up shows that in the Okha foraminiferal assemblage, the family miliolidae dominates and constitutes 22.2% of the total foraminiferal population. It is followed by families bolivinitidae, rotaliidae, and elphidiidae (11.1% each); and astrorhizidae, textulariidae, nubeculariidae, discorbidae, eponididae, amphisteginidae, cibicididae and nonionidae (5.55% each).

A comparison of the Okha beach foraminiferal assemblage with those reported in more recent papers from the west coast of India was also made. Jain and Bhatia<sup>10</sup> reported foraminifera from beach sands of Mandvi, Kutch, of which, *Spiroloculina indica*, *Quinqueloculina (Miliola) kerimbatica*, *Q. seminulum*, *Bolivina striatula*, *Rectobolivina raphanus*, *Cancris auricula*, *Pararotalia boltovskoyi*, *Elphidium crispum* and *Poroepionides lateralis* are common to Okha assemblage also. From Calangute beach assemblage reported by Bhalla and Nigam<sup>11</sup>, *Quinqueloculina seminulum*, *Triloculina terquemiana*, *Cancris auricula*, *Ammonia annectens*, *Elphidium craticulatum*, *E. crispum*, *Poroepionides lateralis*, *Amphistegina radiata*, *Cibicides lobatulus* and *Florilus scaphus* also occur in our material. A comparison of the Okha beach foraminiferal assemblage with that from the Malabar coast reported by Bhalla and Raghav<sup>12</sup> exhibits that *Cancris auricula*, *Ammonia annectens*, *Elphidium crispum*, *Amphistegina radiata* and *Florilus scaphus* are common to both the beaches.

All the foraminiferal species are benthic in nature and the assemblage belongs to warm water environment.

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## CLASTOGENIC AND MITOCLASIC EFFECTS OF BENZIMIDAZOLE DERIVATIVES

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BENZIMIDAZOLES known for their varied biological actions are extensively used as fungicides and anti-helminthic agents. An important feature is the presence of 5,6-dimethyl benzimidazole- $\alpha$ -D-ribofuranosyl group in vitamin B<sub>12</sub> molecule. Pharmacological, toxicological and teratogenic properties of benzimidazoles are well understood. Studies on mutagenic activity of some fungicides belonging to the ben-