THE ORDER HADROMERIDA (PORIFERA:DEMOSPONGIAE), TAXONOMY AND RELATIONSHIPS OF THE MAJOR FAMILIES

by

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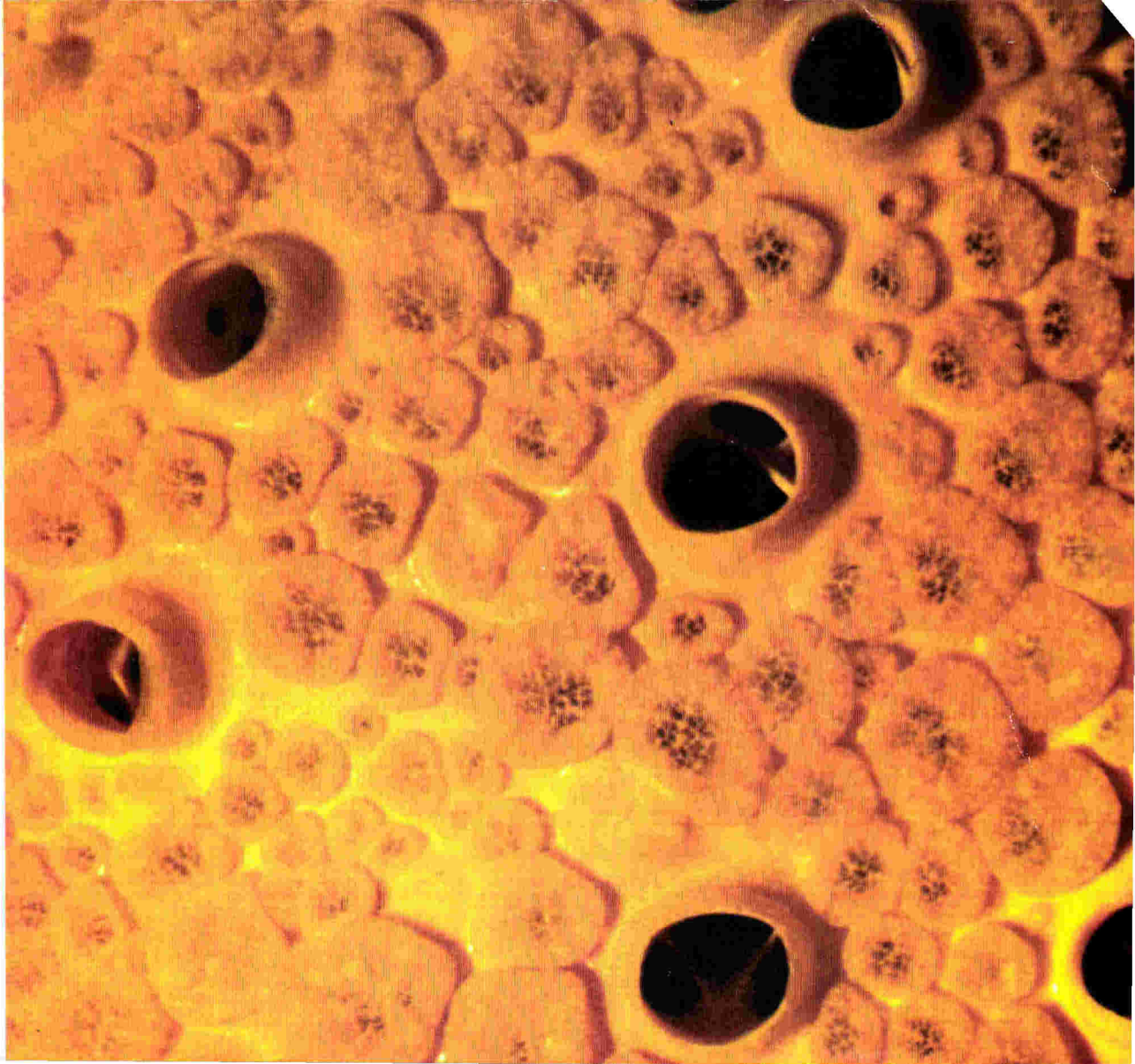

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ABSTRACT

Despite advances of recent years no stable higher order classification of the Porifera has yet emerged. To address this problem, relationships at various taxonomic levels within the Order Hadromerida have been evaluated. Descriptions of new species of *Tethya*, *Aaptos* and *Polymastia* from northern New Zealand are given in conjunction with a review and redefinition of specific diagnostic characters for these genera. A range of species, genera and families within the Hadromerida have been subjected to 18S rRNA sequencing. Using morphological and molecular sequence data together in phylogenetic analysis, the existing familial groups of the Hadromerida are confirmed and some rearrangement of genera is indicated following sequence alignment and comparison. These data serve as a baseline for molecular approaches to resolving relationships between other sponge groups.

ABBREVIATIONS

B-MCE	B-mercaptoethanol
DEPC	diethylpyrocarbonate
DNase	deoxyribonuclease
DNA	deoxyribonucleic acid
A	adenosine
T	thymine
G	guanine
C	cytosine
cDNA	complementary DNA
CTAB	cetyltrimethylammoniumbromide
dA/T/G/C/TP	deoxy A/T/G/C/ triphosphate
ddA/T/G/C/TP	dideoxy A/T/G/C/ triphosphate
DTT	dithiothreitol
EDTA	ethylenediamine-tetra-acetic acid
MOPS	3-(*N*-morpholino)propane-sulphonic acid
PAUP	phylogenetic analysis using parsimony
rRNA	ribisomal ribonucleic acid
Sarkosyl	*N*-lauroylsarcosine
SDS	sodium dodecyl sulphate
Taq	*Thermus aquaticus* DNA (polymerase)
TBE	Tris/borate electrophoresis buffer
TE	Tris/EDTA (buffer)
TEMED	*N*,*N*,*N*',*N*'-tetramethylethylenediamine
Tris	tris(hydroxymethyl)aminomethane
UWGCG	University of Wisconsin Genetics Computor Group

FIGURES, TABLES AND PLATES

PHOTOGRAPHIC PLATES

COLOUR PLATES

APPENDIX PLATE 1

Appendix 2 and 6.

APPENDIX PLATE 2

TEXT FIGURES

TABLES