

A NEW DIATOM INTERMEDIATE IN CHARACTERS BETWEEN *PODOSIRA* AND *HYALODISCUS* FROM A TEMPORARY FRESH WATER LAKE IN WESTERN AUSTRALIA

Jacob John & Chris Hofmeester

Dept. of Environment & Agriculture, Curtin University

Many wetlands in the Swan coastal plain Western Australia have been affected by declining rainfall in recent years. Many of the groundwater dependent wetlands have become temporary with prolonged periods of desiccation and short periods of inundation. During a palaeoecological investigation of such a lake - Yeal Lake in 2011, a diatom taxon combining the characters of the marine diatoms *Podosira* and *Hyalodiscus* were found in abundance. The objective of this paper is to describe the ultra-structural characters of this diatom.

The fresh cell is furnished with disc-shaped chloroplasts and occurs in colonies of clusters. The cell is lens-shaped with a thick cell wall, forming one of the dominant diatoms soon after inundation during the winter rains. The highly thickened cell walls display the typical striae pattern of *Hyalodiscus* in the inner surface with a well-defined central area (umbilicus) and period striae in undulate rows reaching the margin with shorter striae in between. The striate zone occupies almost half of the radius. With scattered undeveloped rimoportulae.

The external surface of the valve face and mantle is characterised by striae with tiny pores compactly arranged in criss-cross manner without any central area –somewhat similar to external surface of *podosira*. The cross section of the cell wall indicates the pattern of silicification changes halfway from regularly arranged tubular chambers to criss-cross chambers towards the external surface. While a layer of silica seems to form the central area on the internal surface. No such layer is formed on the external surface. Thus a single valve shows the structure of *Hyalodiscus* in the inner surface and that of *Podosira* on the outer surface. This diatom tends to be present in abundance in Yeal lake for the past 3000years according our palaeoecological studies. The significance of the species in the context of declining rain fall and the taxonomic status of the diatom should initiate some interesting discussion