

**PHYLUM DICYEMIDA IN AUSTRALIAN WATERS: FIRST RECORD AND DISTRIBUTION
ACROSS DIVERSE CEPHALOPOD HOSTS**

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ABSTRACT: Dicyemid mesozoans are marine organisms that live exclusively in the excretory organs of cephalopod hosts. This study constitutes the first record of the Phylum Dicyemida from Australian waters and provides information on the degree of infections within and between shallow-water host species, and on the distribution of dicyemids across latitude. A total of 38 cephalopod species from 8 families were collected throughout southern, eastern and western Australia, and investigated for the presence of dicyemids. Individuals from 24 cephalopod species were found to be infected, generating new host records of dicyemids for 23 species, 5 genera (*Euprymna*, *Grimpella*, *Hapalochlaena*, *Sepiadarium*, *Sepioloidea*) and one family (Sepiadariidae). This investigation represents the first detailed cross-latitudinal survey of dicyemids. Findings of dicyemids in three tropical octopus species (*Octopus alpheus*, *O. dierythraeus* and *O. ornatus*) and multiple findings of uninfected adult benthic cephalopods in temperate regions allow us to re-evaluate and modify concepts of latitudinal trends proposed in previous studies on this group of parasites. Implications of our observations on the largely unknown dicyemid life cycle are discussed.
