

Chapter 1

The nature of parasitism

This chapter consists of two sections. The first gives definitions of terms and a brief discussion of some adaptations to a parasitic way of life, such as body size, reproductive capacity, reduction and increase in complexity, and dispersal. The second discusses the distribution of parasites and in particular of marine parasites in the 'tree of life'. It is emphasised that life originated in an aqueous and probably marine environment, and that every marine organism is a potential host to parasites.

Definitions, and adaptations to a parasitic way of life

Klaus Rohde

Introduction

Biologists approach the study of parasites from different angles: some are interested in their physiology, others in their ecology, or medical and economic aspects, to mention only a few. Consequently, definitions of parasitism vary greatly, reflecting the research interests and biases of particular research workers. Baer (1952), Esch and Fernández (1993) and Rohde (1993, 2001) have discussed definitions and adaptations of parasites.

In most sections of this book, *parasitism* is understood to be a close association of two organisms, in which one – the parasite – depends on the other – the host – deriving some benefit from it. This benefit often is food. In some sections, however, the term *parasite* is used in a wider sense. For example, peritrich ciliates leading to severe problems in shrimp aquaculture are really fouling organisms that become pathogenic and fatal in heavy infections.

Many bacteria, viruses and fungi are parasitic. These organisms have traditionally been studied by microbiologists, and only protistan and metazoan parasites are considered to be objects of study by parasitologists *sensu strictu*, although the border between protistans and fungi is somewhat blurred. In this book, only protistan and metazoan parasites are discussed.

Related associations

Several types of associations are related to parasitism and cannot always be clearly distinguished from it. They include commensalism, phoresis (phoresy), mutualism, and symbiosis.

- *Commensalism* occurs where organisms use food supplied in the internal or external environment of a host without affecting the host in any way. Examples are certain barnacles on the skin of marine mammals.
- In *phoresis*, organisms use a host for transport or shelter. Examples again are certain barnacles on whales, or sea anemones on gastropod shells.