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Study of Parasites and their Interactions in Parasitology

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Commentary

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DESCRIPTION

The study of parasites, their hosts and their interactions is known as parasitology. The scope of parasitology as a biological study is determined not by the organism or environment in issue by their method of existence. This implies that it draws on techniques from sciences like cell biology, bioinformatics, biochemistry, molecular biology, immunology, genetics, evolution and ecology to create a synthesis of other fields.

Medical parasitology is one of the most important branches of parasitology since it deals with parasites that infect humans, the diseases they cause, the clinical picture and the human reaction to them. It also covers the many approaches for diagnosing, treating and finally preventing and controlling diseases.

A parasite is a group of organisms that lives on or inside another organism known as the host. *Plasmodium* spp., the protozoan parasite that causes malaria is one of these creatures. *P. falciparum*, *P. malariae*, *P. vivax* and *P.*

ovale are the four human-infectious species. Leishmaniasis is caused by unicellular organisms called leishmaniasis. Intestinal infections caused by *Entamoeba* and *Giardia* (dysentery and diarrhoea). *Schistosoma* spp., *Wuchereria bancrofti*, *Necator americanus* (hookworm) and *Taenia* spp. are multicellular organisms and intestinal worms (helminths) (tapeworm). Ticks, scabies and lice are ectoparasites.

Drug development, epidemiology investigations and the study of zoonoses are all examples of medical parasitology. The study of parasites infects companion animals or creates economic losses in agriculture or aquaculture projects. A blowfly named *Lucilia sericata* lays eggs on the hides of farm animals. The maggots hatch and crawl into the flesh causing the animal to suffer. Identifying the structures of parasite proteins may aid in better understanding how these proteins differ from analogous proteins in humans. Furthermore, protein architectures may aid in the drug discovery process [1-5].

Parasites have a clustered distribution among host individuals. Therefore, the majority of parasites dwell in a small number of people. This trait requires the employment of modern bio statistical methodologies by parasitologists. Parasites can provide information on the ecology of the host population. Parasite communities might be used in fisheries biology to discriminate between different populations of the same fish species co-existing in a location. Parasites also have a number of distinct features and life-history methods that allow them to infect their hosts.

The enormous diversity of parasitic species makes it difficult for biologists to characterize and catalogue them. Because many parasites are very degenerate, obscuring links between species, recent advancements in using DNA to identify individual species and examine the relationship between groups at various taxonomic scales have proven extremely valuable to parasitologists.

In 1681, Antonie van Leeuwenhoek identified *Giardia lamblia* and linked it to "his own loose stools." He discovered this protozoan parasite in humans for the first time and it was the first one he saw under a microscope. Scabies is caused by the parasite mite *Sarcoptes scabiei*. According to Italian researchers, Giovanni Cosimo Bonomo and Diacinto Cestoni, who published their findings in 1687, make scabies the first human disease with a documented microscopic causal agent. Francesco Redi discussed ectoparasites and endoparasites in the same book, Esperienze Intorno alla Generazione degli Insetti (Experiences of the Generation of Insects) with illustrations of ticks, deer nasal fly larvae and sheep liver fluke.

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