

**Title : Castrating the drowning host: the sophisticated manipulation by the horsehair worm**

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**Related RISH mission :** Mission 1 (Environmental Diagnosis and Regulation of Circulatory Function)

**Abstract :**

Horsehair worm (phylum Nematomorpha) is an aquatic parasite commonly found in terrestrial host insects. Infection of the parasite changes host's responses to water, resulting in abnormal behavior in which the host jumps into an aquatic environment where the adult parasite reproduces. The drowning infected host represents the energy resource that flow from the terrestrial to the aquatic environment, and significantly impacts the behavior of the stream trout. Such alternation on the host behavior is known as host manipulation, which extends the parasitic effects from the host individual to ecosystems. In this seminar the mechanism behind such host manipulation will be discussed. In the relation to parasite's reproduction, alterations in host behavior occur successively when the horsehair worm matures. Recent studies have found that the parasitic effects on host development can occur in the early stage of infection. The infected hosts, for example, develop abnormal secondary sex characters and courtship, which can lead to reduced reproduction or even castration. The host reproductive reduction allows more resource available for parasite development. Notably, it might also prevent the host defense against the following behavioral manipulation since a castrated insect no more contributes to the existence of its own population.

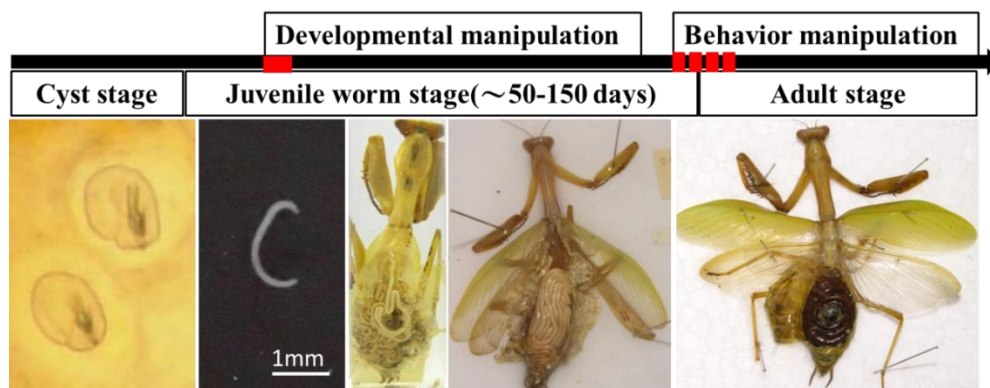


Fig. 1 Horsehair worm development in the mantid host with host phenotypic alternations