

How the fear of being killed affects life stages in damselflies?

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Thousands of species both plants and animals found their habitats on Earth. For a given species to survive, they live in complex interactions with each other and with the physical surrounding. Struggles related to survival almost constitute a permanent situation in living organisms. Efforts deployed by organisms for their survival appear in various forms and have also multiple purposes. For instance, a given organism can struggle to have shelter, mate, food, among others. In some species, one way of getting food is to kill other organisms, this is a biological interaction known as predation.

Predation has, for many years, attracted attention to scientific field which tried/tries to understand its mechanisms in species and predation-related outcomes. In individuals or species as whole, predation can impact various traits with specific consequences. My study has focused on investigating whether the risk of mortality induced by predation can affect different life stages in three damselfly species (*Ischnura elegans*, *Coenagrion pulchellum* and *Enallagma cyathigerum*). I investigated some early life stages such as egg hatching and synchrony as well as survival and growth in larvae of the tree species.

My results showed that predation risk reduced the proportion of egg hatching and larval growth. However, it did not affect egg hatching synchrony and larvae tended to survive better (at least after 10 days of investigation) in the presence of predation cues.

In ecosystems, organisms are interconnected in one or another way. In most of cases, the survival of a single or a group of individuals depends on each other, even human being is directly or indirectly connected to the wild life. In the tropical region, for instance, the disruption in mosquito-eating insects can lead to consequences in humans since malaria may increase. Given that the damselfly species I investigated are semi-aquatic insects, the results of my study could be used to demonstrate the consequences or benefits which could arise in aquatic ecosystems if predation disturbs the normal aquatic life dynamics. Not only consequences/benefits will be restricted to that particular ecosystem but also will extend to other ecosystems related to this.

The consequences could even be devastating. Therefore, my study is a useful tool to start other studies to demonstrate potential consequences related to the predatory activities in damselfly populations.