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Impact of Parasitic Infestations on The Health and Survival of *Channa punctatus*: Insights from GaSI and HSI Analysis in East Champaran, Bihar

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Channa punctatus, a common freshwater fish in the Indian subcontinent, including regions like India, Afghanistan, and Myanmar, holds significant nutritional value as a food fish. However, it faces severe challenges due to helminth, anthocephalan and crustacean parasite infestations, which impair its growth and survival rates. In a study conducted at Motijheel and Sarotar Lake, East Champaran, Bihar, specimens of *Channa punctatus* were collected, of which 33 percent were infected.

The parasites identified were digenetic trematode *Clinostomum complanatum* (yellow grub), Acanthocephalans and Argulus and Nematodes. These parasites recognized for its global distribution, causes substantial damage to the internal organs and metabolic functions of the fish. An infestation of Argulus leads to significant immunomodulatory effects in its hosts, resulting: argulosis, inflammation, extensive tissue damage, and potentially death. Additionally, the GaSI and HSI were examined, revealing significant fluctuations in feeding potency, metabolic functions and liver function.

These findings underscore the importance of understanding parasitic dynamics and their impact on *Channa punctatus* to ensure sustainable aquaculture practices.

