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The infection of *Euclinostomum sp.* in *Channa punctatus* with molecular with special and morphological study from Koderma reservoir, Jharkhand, India

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ABSTRACT

Worldwide, the parasite family Clinostomidae is widely dispersed. *Euclinostomum* sp., a common digenetic trematode, has a metacercariae stage that is ideal for infecting Channidae species because it becomes encysted in their kidneys, liver, and muscles. This paper aimed to identify *Euclinostomum sp*. in *Channa punctata* by means of a genetic and morphological combination of approaches. The morphological characteristics of the species were examined using both a light and scanning electron microscope. This parasitic organism was fascinatingly exposed by the SEM investigation, with its flattened, leaf-shaped body covered with surface characteristics. Sequencing the purified PCR results from many worms using *Euclinostomum sp.*'s 18sRNA gene produced sequences of 1700 bp nucleotides, on average. The NCBI has assigned *Euclinostomum* sp. the accession number OQ286054. The phylogenetic reconstruction demonstrated a strong genetic resemblance across the various strains of *Euclinostomum*, suggesting a common genetic ancestor. Compared to the monsoon and post-monsoon, the pre-monsoon had the highest percentage of parasite prevalence.

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KEY WORDS : *Channa punctatus*, *Euclinostomum sp,* PCR, Prevalence, 18sRNA, SEM

Introduction

Fish is essential to human diets as a low-cholesterol source of protein and as a means of generating subsistence income[2]. Since fish are now a major source of food for humans and some parasites have an adverse effect on human health, many parasitologists are interested in studying fish parasites[30]. The spotted murrel is a species of snakehead fish in the Channidae family, scientifically known as *Channa punctata*. Native to Southeast Asia, this warm-water teleost is known by many names as the spotted murrel. It can be found in restricted water as well as freshwater environments including lakes, ponds, and rivers[10]. Nonetheless, freshwater murres support a complex biological connection in their aquatic environment by acting as a common host and habitat for a wide variety of parasites[13,24].

Digenea is a large subclass of the class Trematode under the phylum Platyhelminthes, with about 25,000 species, they primarily have an oral sucker, an acetabulum, an underdeveloped digestive system, and a syncytial tegument that can be smooth or modified by spines, channels, or microvilli[5]. Clinostomidae is a family that includes subfamilies Euclinostominae of which *Euclinostomum* is the type genus shown as a sole[15]. The species *Euclinostomum heterostomum*, was initially identified as *Distoma heterostomum* in Ardea purpurea's oesophagus[16]. Later, *Euclinostomum* and *E. heterostomum* were established. The harmful effects of *E. heterostomum* metacercariae on the liver and kidney in animals belonging to the Channidae family have been documented in the past. The metacercariae stage of *E. heterostomum* uses fish (*Channa spp*.) as their intermediate host, and adults are usually found inside

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