Editorial

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Toward a Refined Framework for *Diploscapter* Species Identification

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The study deals with the intricate and underexplored issue of species identification within the genus *Diploscapter*, focusing particularly on *D. coronatus* — a nematode with rare yet notable presence in human specimens[1]. The authors combine classical morphological observation with molecular approaches, namely SSU rRNA and Hsp90 gene sequencing, to evaluate a nematode isolated from a patient with Henoch-Schönlein purpura. While the study offers a snapshot of the complexities involved in identifying *Diploscapter* species, it also highlights broader challenges in nematode taxonomy that warrant further exploration.

One of the most significant insights emerging from this work is the discordance between morphological identification and molecular phylogeny. Despite morphological alignment with *D. coronatus*, the Hsp90-based phylogenetic placement within the *D. lycostoma* cluster reveals potential limitations in both gene-targeted analysis and the current state of the genetic database. This finding reflects a common issue in parasitology: using only one gene or morphometric approaches often isn't enough to clearly identify species, especially in groups that look very similar and have little genetic information available. The authors point out the lack of comprehensive reference data for *Diploscapter* species. So far, only three species (including the newly described *D. formicidae*) have been well-characterized in genetic databases. This lack of information makes it hard not only to correctly identify species but also to understand which hosts they inhabit and how they have evolved. Furthermore, one sample can be placed into two different species groups depending on which gene (SSU rRNA or Hsp90) is used. This shows that using just one gene may not be reliable, and studying many genes or even the whole genome is important — especially when the species might affect human health.

Notably, while males are generally thought to be absent in the genus *Diploscapter*, the study reports their presence. This rare discovery is important. If more examples of male reproductive features can be found and studied in *Diploscapter*, it could lead to new ways of identifying species — not just by looking at genes, but also by including differences in how they reproduce. Another important point is the idea that the host an organism lives with, along with its environment, might influence how related species are grouped in evolutionary trees. Some *Diploscapter* species, like *D. formicidae* and *D. lycostoma*, have been found in ants. This could suggest a hidden pattern of co-evolution between these nematodes and their hosts, which we haven't fully understood yet because there haven't been many studies or reports. Human infections are very rare, so each case is especially valuable. The authors' report of a specimen found in a human is an important finding. These findings serve as both a warning and a reminder that we need to do more. Accurately identifying nematode species — especially in groups like *Diploscapter* — requires strong and varied methods. To move forward, we need to expand genetic databases, use physical characteristics more consistently, and make genetic testing easier to access in parasite research and diagnosis.

This study is highly valuable for its careful and clear investigation of a topic that is important to both biology and medicine. The study contributes important new data and raises intriguing questions for future research: How many different *Diploscapter* species are there really? Can the type of host they live in or the shape of male features

help us tell them apart? And how can we make sense of differences between genetic data and physical traits?

This study shows that identifying species is not just a technical task — it also challenges how we understand and interpret what we see, especially with the limits of the tools we currently have. In this way, the research takes an important step toward a deeper and more complete understanding of a group of nematodes that we still know little about, but that are important in biology.

References

1) Watthanakulpanich D, Anantaphruti MT, Maipanich W. Diploscapter coronata infection in Thailand: report of the first case. Southeast Asian J Trop Med Public Health. 2005; 36 (Suppl 4) : 99-101.