

淺談寄生蟲型態學診斷之應用與限制-以蠕蟲為例

疾病診斷組

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摘要

常見的蠕蟲，包括線蟲、吸蟲、條蟲等內寄生蟲，因其體型細小或致害不明顯，在檢診時往往被忽略，惟其往往具有複雜生活史、跨越不同類宿主，及具有人畜共通風險的特性。為提升相關領域對於寄生蟲的共識，世界動物衛生組織「被忽略的人畜共通寄生蟲專題」中特別點出值得重視議題，包括豬肉條蟲、旋毛蟲、棘球條蟲及肝吸蟲等。在分子生物的紀元，寄生蟲型態學診斷仍在寄生蟲研究有重要的地位，係因為早期文獻及分類依據系建基於型態學，且在蟲體的分離及型態學的觀察過程中，可提供諸多生態或病理的資訊，例如：活體的運動狀態、色澤氣味、寄生部位偏好及所造成的病變等。

型態學診斷的方法包括但不限於肉眼觀察、光學顯微鏡觀察、電子顯微鏡觀察等。型態學亦可以量化，例如在型態測量學研究中，可進型簡單至複雜的統計分析。型態學也可結合特殊染色及共軛焦顯微鏡，可揭示複雜的內部構造及肌肉神經組織，並有助於了解其功能生物學。結成型態學及基因序列資料之複合分析，則可擷取個別技術之優點，並強化親緣關係分析之可信度。

在本研究中，藉由馬蹄吸蟲、石虎條蟲、羊條蟲、羊線蟲等實際型態學診斷案例，探討並分享寄生蟲型態學診斷的應用及限制。

The applications and limitations of morphology for parasite diagnosis-case studies of helminths

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Abstract

Helminths, for examples endoparasites such as nematodes, digeneans, cestode, are often neglected due to their small size or lack of obvious hazards. However, some of these parasites possess the characters of complex life-cycle, diverse hosts species across different taxa, or zoonotic risk. For this reason, in the project “Neglected Parasitic Zoonosis (NPZs)” held by World Organization for Animal Health (WOAH), important issues related to helminths were raised, including porcine cysticercosis, echinococcosis, and trichinellosis. Morphological identification techniques in parasitology still have their place in the era of molecular biology. That is because early researches and classification system were built on morphology, and more information related to parasite ecology and pathology can be revealed during the process of isolation and live worm observation. For examples, their movement patterns, surface textures, colors, odors, their preference sites, and pathological effected, etc.

The techniques for morphological identification include but not limit to: observation by naked eye, light microscopy, or electron microscopy. Morphology can be quantified as well, for examples in morphometric studies, simple to sophisticated statistics can be applied. Furthermore, in combination of specific stain and laser scanning confocal microscopy, complicated neuro-muscular systems can be revealed, to enhance our understanding of functional biology. The combined-evidence studies which include both morphological and genetic data, can take advantage to both techniques, and strengthen the confidence of phylogenetic analysis.

In the present study, by means of case studies of *Maritrema* sp., cestodes from leopard cat, and cestodes and nematodes from goat, the applications and limitations of morphological diagnosis were share and discussed.