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# Pictorial Dichotomous Key of Suborder Anabantoidei Found in Thailand

ABSTRACT

This study aims to develop a pictorial dichotomous key for fish species in the Suborder Anabantoidei found in Thailand, along with detailed morphological descriptions of each species. It also provides key information on each species, including scientific and common names, morphological traits, and basic biological data. A total of 12 fish species were collected from ornamental fish shops and field surveys by the local expert between August and December 2024. After collecting the specimens, each species was identified and cross-checked with reliable identification manuals for confirmation. The specimens were then set and photographed using a digital camera. Following this, they were preserved in a formalin solution and examined under a stereomicroscope to capture detailed features required for illustrating the pictorial key. Based on the results of this study, a pictorial identification key for fish in the suborder Anabantoidei was created. It includes illustrations of the whole fish, key identification features, and descriptions. The key is designed to be user-friendly for a wide range of users.

INTRODUCTION

Suborder Anabantoidei, commonly known as labyrinth fishes, is a diverse group of freshwater fishes characterized by a specialized labyrinth organ that allows them to breathe atmospheric oxygen. In Thailand, this suborder includes various species from families, such as Osphronemidae and Helostomatidae, which are ecologically and economically significant. Despite their diversity, species identification remains challenging due to morphological similarities and limited taxonomic resources. This study aims to develop a pictorial dichotomous key for the Anabantoidei found in Thailand, providing a visual and user-friendly tool for accurate species identification. By integrating detailed illustrations and diagnostic characteristics, this key will serve as a valuable reference for researchers, conservationists, and aquarists.

METHODOLOGY
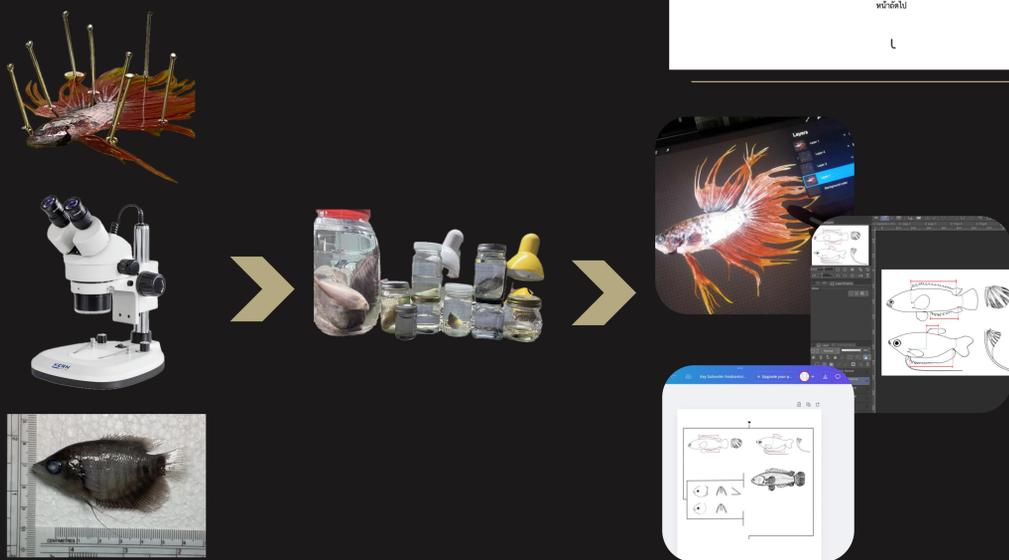
Collecting samples, then studying morphology and recording data.

Preservation in 10% formalin solution.

Decorating pictures and making dichotomous key by using tablet applications.

RESULTS

DISCUSSION

This study developed a pictorial dichotomous key for Suborder Anabantoidei identification using specimens collected between August and December 2024. The key was found to be effective for species identification in laboratory. Compared with pictorial key from Fish of the Indochinese Mekong (Taki et al., 2021), which broadly covers fish from the Lower Mekong Basin, this study focuses specifically on Anabantoidei, to fill the gaps in species identification. Similarly, A Field Guide to the Northern Thai Fishes written by Suvarnaraksha and Utsugi (2023) primarily relies on side-view photographs for identification without considering morphological details, such as fin ray counts. Therefore, this study found that number of fin rays provided greater accuracy in identifying Trichopsis species than relied solely on body patterns. The methodology of this study was adapted from Fishes of Japan with Pictorial Keys to the Species by Nakabo (2002), with simplifications in the numbering system to make the key more user-friendly. Additionally, Fish Species Analysis Manual (Faculty of Fisheries, Kasetsart University, 1998) highlighted that Betta taeniata (Borneo betta) was previously recorded in Thailand (Monkolprasit, 1997), but recent records of its presence are scarce. The pictorial dichotomous key developed in this study helps to reduce misidentification of Anabantoidei species in Thailand, making it valuable for users without a taxonomic background as well as researchers and conservationists. However, some species remain difficult to study due to their rarity and limited accessibility. Future research should expand sample collection and study sites to improve the key's comprehensiveness.

ACKNOWLEDGMENTS

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