

I. INTRODUCTION

1.1 Background

Ichthyophis elongatus Taylor, 1965 is one of the caecilians found in West Sumatra, known as "ula tanah/ula sarok" (Padang, Batusangkar, Solok) or "ulek tanah" (50 Kota) by the local community. *I. elongatus* belongs to the *Gymnophiona* Order, which is one of the three amphibian orders that are the least well known or even recognized, because of their underground habits and worm-like body shape, which distinguishes them from other amphibian orders such as frogs and salamanders. Furthermore, this species characteristics are lack of legs, smooth skin, small eyes, and a pair of tentacles between the eyes and nostrils, and also restricted to tropical forest environments (Taylor, 1968; Gudyna *et al.*, 1988; Gower and Wilkinson, 2005;).

There are currently five out of ten species of genera that exist in Indonesia that can be found in Sumatra. The five species are *Ichthyophis elongatus* Taylor, 1965; *I. paucidentulus* Taylor, 1960; *I. paucisulcus* Taylor, 1960; *I. sumatranus* Taylor, 1960; and *I. billitonensis* Taylor, 1965 (Taylor 1960, 1965; World Amphibian Species, 2020; AmphibiaWeb, 2020). *Ichthyophis elongatus* Taylor, 1965, is the only one of five species which a locality type in Padang, West Sumatra (Taylor, 1965). The International Union for the Conservation of Nature (IUCN) has assigned this species the status of data deficient which means there is a lack of data on abundance and/or distribution (IUCN SSC Amphibian Specialist Group 2018; Harapan *et al.*, 2020).



This species is found in moist areas along the river. Larvae only exist in the river, juvenile specimens were gathered in a shallow section of the river as well as in leaf litter along the river's banks (Iskandar, 2004). This species is also found in leaf litter, under rotting logs, and along stream beds, paddy fields, riverbanks, and secondary woods, as well as damp settings such as marshes and tiny muddy rivers (Hamidy, 2007; Geissler *et al.*, 2014; Harapan *et al.*, 2020). Until now, *I. elongatus* research has primarily focused on morphology and distribution (Taylor, 1965; Harapan *et al.*, 2020). There are no phylogenetics research has been done for this species which explains how the kinship relationship between these species with other species. According to Mauro *et al* (2004), who states that the data sampling is expected to provide much-needed new insights into caecilian phylogeny, particularly with regard to poorly understood relationships among the greater caecilians. DNA mitochondria have been widely used as a molecular marker in phylogenetic studies, which can be regarded as a model that shows an organisms kinship relationship (Brinkman and Leipe, 2001).

The kinship relationship is described by constructing phylogenetic trees with a maternally inherited gene, one of which is the cytochrome b gene, which is currently widely used to construct phylogenetic trees and can also solve problems at the family to species level, so that the kinship relationship of a species can be known (Gower *et al.*, 2002, 2005; Kartavtsev and Lee, 2006). According to research by Gower *et al.* (2005) on the cytochrome b gene of *Ichthyophis* in Sri Lanka that are monophyletic. Based on the literature review, further research on the kinship relationship between *I. elongatus*, which is present in numerous regions of West Sumatra, and other Asian *Ichthyophis* is required.



1.2 Formulation of Research Problem

How is the genetic relationship between the *Ichthyophis elongatus* found in West Sumatra and other Asian *Ichthyophis*?

1.3 Research Objectives

To determine the genetic relationship between the *Ichthyophis elongatus* in West Sumatra and other Asian *Ichthyophis*.

1.4 Benefits of Research

The findings of this study would contribute to scientific knowledge of Indonesia's biodiversity, particularly in West Sumatra, where the species *Ichthyophis elongatus* is found.

