

• Coral de Camila •

(*Micrurus camilae*)

Bites, venoms, and venomous snakes of Colombia

G4

MEDICAL IMPORTANCE GROUP 4

Snakes that **bite rarely**, and **have not caused significant envenoming** or have not caused documented bites



⚠ Poorly Reliable: Confidence for this species is poor due to the lack of data and information on Colombian populations. Therefore, most of our knowledge comes from a few studies and populations outside the national territory.



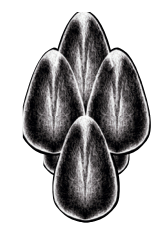
⚠ Detail of: Head, body and tail.

1. Envenomation symptoms



To date, the profile of toxic activity or envenomation symptoms associated to the bite of *Micrurus camilae* have not been described. Envenoming caused by species of the genus *Micrurus* are known from a global symptomatic trend, given that venom of this genus have an ancestral trait that allows the presentation of clinical manifestations to be guided along a neurotoxic line. This has facilitated the collection of epidemiological information from Colombia's public health surveillance system (SIVIGILA Spanish acronym), but does not yet allow a specific grouping symptoms by species [1].

Symptoms relies directly on envenoming severity. Records of coralsnake bites reported symptoms that range from anxiety, pain and inflammation to respiratory paralysis. *Micrurus* venoms causes neurotoxic signs. Local symptoms occur with tingling in the bitten area, paralysis, burning or prickling sensation (paresthesia), mild itching, muscle tenderness and numbness. Paresthesia in large areas of the body appear in moderate and severe cases. Direct neurological symptoms are fuzzy vision, difficulty in speaking, disorientation, confusion, shortness of breath (dyspnea), excessive sweating (diaphoresis), weakness, and even vomit. Several symptoms are related with losing complete limbs sensitivity, difficulty for walk and breath [1,2].



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2. Treatments and snakebite care



Due to the neurotoxic action of the coral snake's venom and the variation of appearance of symptoms, all *M. camilae* envenoming must be taken as a serious accident, and medical attention must be carried out immediately to avoid serious lesions or death of the patient [4].

Coral snake bites present high probability of respiratory failure in envenoming and quick medical procedures are important for treatment for the survival of the patient. Firstly, the patient should remain at rest within their possibilities and monitoring should be constant in order to attend any symptom related with respiration [1]. According to the clinical and paraclinical manifestations, the snakebite accident must be categorized as: mild, moderate and severe envenomation (see Envenomation symptoms section).

For envenomation's caused by any *Micrurus* species there is a general management protocol depending on the used serum and envenomation level. The first step is to make sure that a *Micrurus* spp envenomation has occurred by observing the patient symptoms and bites marks in the area bitten. Second, the application of initial doses are 5 to 10 evaluating both allergic and neurotoxicity reactions. Preparation of serums is based on the manufacturer's specific instructions. However, it is recommended to initiate treatment with 5 vials (INS antivenom) for mild cases and 10 vials (INS antivenom) for moderate to severe cases [1,6]. The dosage is the same for both children and adults [8]. Particularly, for antivenom from Instituto Clodomio Picado, the initial doses are 10 for moderate to severe cases on *Micrurus dumerilii*; nevertheless, there is a lack of effectiveness in *Micrurus mipartitus*. Applications of doses are repeated if symptoms persist. The serum is applied intravenously, diluted in 250 ml of saline solution for adults and 100 ml in children over one hour in slow drip dosification. In case of hypersensitivity and anaphylaxis reactions, serum administration might be suspended, treat adverse symptoms and restart at lower infusion rate [1,2].

3. Snakebite capacity



The genus *Micrurus* possesses small, grooved, and permanently fixed fangs attached to the anterior section of the maxillary bones (proteroglyphous, see Chapters 2 and 5). Despite their potent neurotoxic venom, their narrow gape ($\leq 30^\circ$) and small fangs result in a low biting capacity, which represents a low risk of envenomation for people wearing clothing, boots, or protective gear. Most bites typically occur on the hands during intentional or unintentional handling or capture.

Unlike viper snakes (family Viperidae), fang marks may or may not be evident. When visible, they resemble small puncture wounds, appearing as two dots—one from each fang—typically spaced 0.5 to 2 cm apart. Therefore, even in the absence of visible marks, *Micrurus* specimens sometimes exhibit chewing behavior and remain attached to the bitten area. However, the defensive behaviors of *M. camilae* are unknown and poorly explored. Thus, these events should not be underestimated, as any accident carries the risk of venom inoculation [1–3].

In Colombia, there are no specific epidemiological records for *M. camilae*. Nevertheless, it is likely that this species has caused bite incidents within its known distribution range. However, due to the limited capacity of the SIVIGILA system to determine the causative species of an accident, these cases are likely part of the national underreporting [1,2] (see Chapter 9).

4. Recognition



Micrurus camilae is a coral species with bicolor coloration (alternated color) of black and pale yellowish in the ventral surfaces and a dorsal banded of red along the dorsal surfaces of the body. The black coloration of head goes from the rostral through the supraocular, including the medium part of the frontal scale and the anterior edge of parietal scales; laterally the black band includes from first to the fourth supralabial scales and the posocular scales. Ventrally, the black color covers the mental, first and second infralabial scales contrasting with the pale yellowish color of the rest of the ventral surfaces of the body. The red covers the extreme frontal scale getting less noticeable until labial scales. The red areas extend only throughout the dorsal surfaces of the body and tail. The whole body (including body and tail) have a total of 31 black rings (4 to 8 scales of width) and 30 red / pale yellow rings (5 to 7 scales of width) [3–5]. There is not similar coral snake with this color pattern in Colombia. However, *M. camilae* could be confused with *Micrurus mipartitus*, and can be distinguished by the aforementioned pale yellowish rings interrupted by red in dorsal along all body. *Micrurus mopartitus* present anomalous coloration but never as *M. camilae*, in addition, *Micrurus mipartitus* present red tail bands [3–6].

5. Distribution



Micrurus camilae is an endemic snake species of Colombia, distributed in the Urabá and Middle Magdalena Valley regions, within the Magdalena-Urabá moist forest ecoregion. It has been reported at elevations between 88 and 176 meters above sea level in environments characterized by high anthropogenic activity, fragmented forests, and stream edges [3,6–8], with an estimated extent of occurrence of approximately 44,971 km².

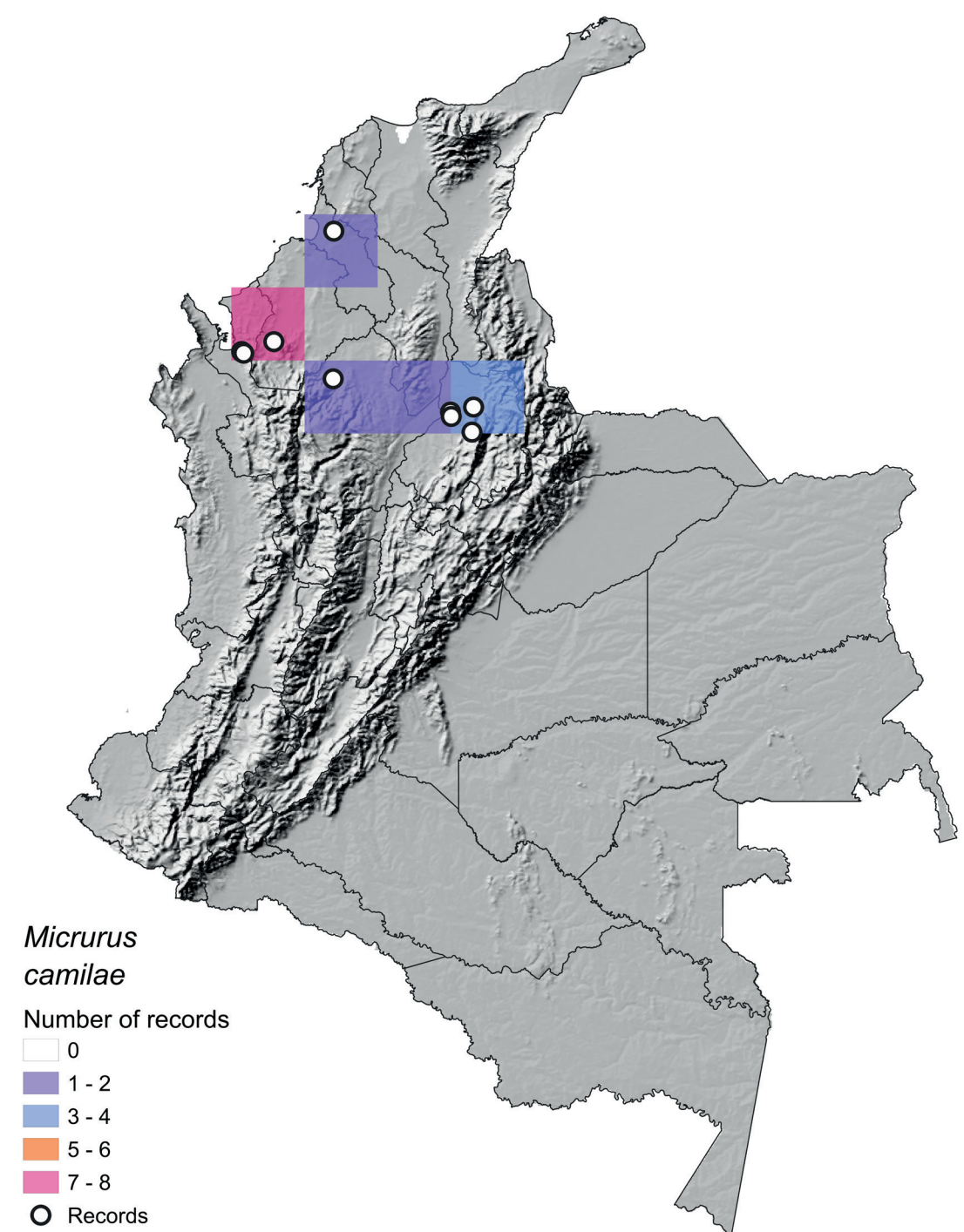
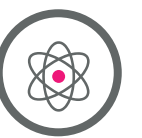


Figure 1. Geographic distribution of *Micrurus camilae* in Colombia and its habitat suitability model. Based on bioclimatic variables, the habitat suitability model predicts the species' potential distribution in Colombia, identifying zones with suitable or unsuitable environmental conditions for its occurrence across the country. Values close to 1 indicate optimal environmental conditions (high probability of presence), while values close to 0 indicate unsuitable conditions (absence likely).

6. Natural history



Micrurus camilae is a rare snake with only 9 records of 8 localities, and the lack of information relies in the difficulty of observing this semifossorial and cryptic species [3–5,8].

7. See it in the wild, rural or peri-urban areas



Micrurus camilae has been reported in high transformed landscapes. It has crepuscular habits and probably during the rest of the day, the snake is hiding underground due to their semifossorial and cryptic behavior [3,4].

8. Conservation



Data deficient. The conservation status of this coral snake unknown. Mostly, the lack of information of *M. camilae* is due the difficult to find it given its fossorial and cryptic habits [3,5,6].

9. Scientific name and common names



The scientific name is derived from the Greek roots *mikros* (small) and *oura* (tail), in reference to their short tails, which is a general trait of species within the genus *Micrurus*. The species *Micrurus camilae* was dedicated to María Camila Renjifo, the daughter of Juan Manuel Renjifo, the lead author of the publication that describes the species [5].

Table 1. Summary of important biological, venom, epidemiological and medical traits.



★ ★

TOXICITY AND BIOLOGICAL ACTIVITY	VENOM ACTIVITY PROFILE	GENERAL BIOLOGICAL TRAITS
LD₅₀ (µg/mice): Unknown	Proteolytic: No	Total Length (cm): ♂ 38.6 ♀ 24.0
MCD (µg/mL): Unknown	Neurotoxic: Yes	Weight (g): ♂ ♀ Unknown
MDD (µg/mice): Unknown	Myotoxic: No	Reproduction: Unknown
MED (µg/mice): Unknown	Hemotoxic: No	Diet: snakes, caecilians, and lizards
MHD (µg/mice): Unknown	-	Distribution: Urabá and the Middle Magdalena Valley, in the Magdalena–Urabá humid forest ecoregion, between 88 and 176 m

PROTEOME

PLA₂: Unknown	SVSP: Unknown	SVMP: Unknown	NGF: Unknown
CRISP: Unknown	CTL: Unknown	DIS: Unknown	KUN: Unknown
BPPs: Unknown	VEFG: Unknown	3FTx: Unknown	
Crotoxin: No	Crotamine: No	LAAO: No	

MAIN ENVENOMATION SYMPTOMS		RISK	GRADE OF ENVENOMATION
Hemorrhage: No	Ecchymosis: No	Bites per year: Unknown	Mild: Unknown
Nausea: Yes	Hematemesis: Unknown		
Hypotension: No	Blisters: No	Bites per 1,000 people yearly: Unknown	Moderate: Unknown
Edema: Yes	Vomiting: Yes		
Coagulopathy: No	Diarrhea: No	Sequelae caused per year: Unknown	Severe: Unknown
Sialorrhea: Unknown	Local Pain: Yes		
Hematuria: No	Necrosis: No	Deaths caused per year: Unknown	
Renal failure: No			

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10. References

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