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Biak Toponyms of Poisonous Fish and Organisms as A Self-Defense Mechanism in the Ecosystem

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Abstract

The toponyms of fish and poisonous organisms are related to ecological knowledge, culture, and human perspectives on the environment. This naming serves not only to identify species but also as a warning, a tool to understand ecosystems, and a way to protect oneself in coastal environments. This study explores the ways in which fish and poisonous organisms are named among the Biak community, the role of toponymy in a cultural context, and the ecological meaning contained in each name. The study employs a qualitative descriptive method through literature review, exploratory interviews, and language analysis. The results indicate that many names for poisonous fish are related to physical characteristics, behavior, and negative experiences encountered by the Biak people. The naming serves as a moral message, reminding younger generations of certain dangers at sea. This study suggests that Biak toponymy is a form of traditional conservation that remains evident in language and cultural practices.

Keywords: Toponym; Poisonous fish; Marine life; Biak culture; Self-protection; Ecological linguistics

1. Introduction

The Biak community has a strong maritime tradition and lives in harmony with the abundant marine ecosystem. The toponyms of fish and poisonous organisms play an important role in the lives of coastal communities, both as hazards and as ecological indicators. For a long time, the community has understood the risks at sea, and they have created a naming system (toponyms) that functions as a tool to minimize danger, provide warnings, and serve as a strategy for self-protection. The naming of fish and poisonous organisms is not only descriptive but also carries symbolic meanings related to shared experiences, mythology, and environmental memory. For example, fish that are highly poisonous are generally named based on dangerous experiences, the injuries they cause, or their aggressive characteristics. Such naming contributes to the community's efforts to prevent accidents and ensure a harmonious relationship with the sea as a source of livelihood. Research on Biak toponymy in the context of poisonous organisms is still very limited, even though it can serve as a significant source of information for the documentation of local languages, ethnoecology, and local conservation strategies. Therefore, this study was conducted to describe the naming of fish and poisonous organisms, as well as to interpret the role of these names as a self-protection system in the Biak culture.

2. Method

The research approach is qualitative descriptive. Data collection techniques include:

- Literature Review: Collecting sources related to Biak toponyms, identification of poisonous fish, and the ethnobiology of Biak coastal communities.

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- Exploratory Interviews Conducted with traditional elders, fishermen, and coastal residents who understand the categories of poisonous fish.
- Linguistic & Ethnosemantic Analysis
- The meanings of names are analyzed through form (phonology-morphology), meaning (semantics), and function (pragmatic-ecological).

Data validity is strengthened through source triangulation and discussions with Biak language users.

3. Results and Discussion

3.1. Categories of Fish and Poisonous Organisms in Biak Culture In general, the Biak community divides poisonous organisms into several groups

- In (fish) that have mamur spines (poisonous)
- In (fish) that are dangerous to touch
- Awan (marine animals) that are naturally poisonous
- Ram (organisms) that sting or produce secondary toxins Each category has a name that contains physical characteristics and biological effects

Table 1 Toponyms for Snon-Snon Naming Fish and Sayaryur (Toxic) Organisms

No	Biak Language	Indonesian & Latin	Biota	Meaning	Form & adaptation	Warning System	treatment
1	Inof Karui	Stonefish (Synanceia verrucosa	Fish can be bony and poisonous	Piercing & painful	The face and body resemble stone, making it difficult to distinguish them from stone.	Avoiding fish bones when catching them	The cassava is grated and applied to the puncture site
2	Inof kasidam	Ikan Singa:	Fish can be spiny and poisonous	Piercing & painful	The shape and body resemble the inside of a coconut, so it is called Kasidam (coconut leaf) in the Biak language	Inof fish is a type of ornamental fish	The cassava is grated and applied to the puncture wound
3	Inof kasun	Ikan inof :	Fish can be spiny and poisonous	Piercing & painful	Its shape and body are thin, located at the river estuary where freshwater meets saltwater	Fish is rarely eaten because it is small	Cassava is grated and applied to puncture marks to draw out poison
4	Arndai	Ikan Pari/ Stingray	Stingrays can have spines and be poisonous	Stinging with its tail & painful	Its shape and body are slender, found in sandy areas, and it usually hides its body in the sand	Avoid its tail because it's spiky when swimming, stepping on it, or catching it	Cassava is grated and applied to puncture wounds to draw out poison

5	Inbab/ baab	Category very large, width 2, length 3	Fish can be spiny and poisonous	Stinging with its tail & painful	Its shape and body are slender, found in sandy areas, and it usually hides its body in the sand	Avoid its tail because it's spiky when swimming, stepping on it, or catching it	Cassava is grated and applied to puncture wounds to draw out poison
6	Arpor	Nine fish	Fish can be spiny and poisonous	Stinging with its tail & painful	A type of fish with a round head and a small body tapering to the tail, hence called the nine fish	Avoiding his back because it is spiky when caught	Cassava is grated and applied to puncture wounds to draw out poison
7	Wus kasun	Small pufferfish (Canthigaster valentini)	Pufferfish is poisonous	Poisonous fish are very dangerous	A very poisonous type could kill all the cats/dogs in a village	Avoid this small fish, it's a type of thick-skinned fish	Remedy made from grated coconut, kneaded, strained, filtered, and then drunk
	Wus beba	Big pufferfish	Large pufferfish is poisonous	Poisonous fish are very dangerous	This type is very poisonous and can kill cats/dogs in a single neighborhood.	A very poisonous type could kill all the cats/dogs in a village	Remedy made from grated coconut, kneaded, strained, filtered, and then drunk
9	Wus kaiban	Pufferfish napoleon Arothronhispidus	Poisonous fish	Poisonous fish are very danger ous	A type of fish can be eaten by peeling off its skin and discarding the liver, which is the poisonous part.	A type of fish can be eaten by peeling off its skin and discarding the liver, as that is the poisonous part.	Remedy made from grated coconut, kneaded, strained, filtered, and then drunk
10	Aruken	Spiny puffer (Diodon hystrix)	Spiny pufferfish	Spiky/poisonous & painfully stinging	This type has poisonous thorns when they sting, but it can be eaten by peeling off the thorns and discarding the skin before eating.	Avoid the thorns	Cassava is grated and applied to the tip of a spike to extract its poison.

11	inperem	Ikan ekor pisau (Acanthurus lineatus)	Spiny/poisonous fish	The tail cuts the finger as if sliced with a knife	This type has poisonous spines when it stings, but it can be boiled or grilled to eat, and the spines are not poisonous.	Avoiding fish bones when catching them	Cassava is grated and applied to the tip of a spear to extract its poison
12	indadwai	Ikan samandar	Fish can be spiny and poisonous	The entire body is covered in thorns	This type has poisonous spines when it stings, but it can be boiled or grilled to eat, and the spines are not poisonous.	bones when catching Avoiding fish them	Cassava is grated and applied to the tip of a spear to extract its poison
13	insarak	Ikan duri	Fish can be bony and poisonous	The entire body is covered in thorns	This type has poisonous spines when it stings, but it can be boiled or grilled to eat, and the spines are not poisonous.	Avoiding fish bones when catching them	Cassava is grated and applied to the tip of a spear to extract its poison
14	indos	Ikan barona	Fish can be bony and poisonous	The entire body is covered in thorns	This type has poisonous spines when it stings, but it can be boiled or grilled to eat, and the spines are not poisonous.	Avoiding fish bones when catching them	Cassava is grated and applied to the tip of a spear to extract its poison
15	inkar	Ikan tanduk	Fish can be bony and poisonous	The type of fish has horns and a tail with a blade	This type has poisonous spines when it stings, but it can be boiled or grilled to eat, and the spines are not poisonous.	Avoiding fish bones when catching them	Cassava is grated and applied to the tip of a spear to extract its poison
16	Inamer	Inamer (has not found the Indonesian and Latin names)	Inamer fish is very poisonous	Inamer fish is very toxic and well-known among the Biak community	The inamer fish is highly toxic and can be fatal if eaten by mistake; it is as large as an adult rabbit's finger.	Avoid a type of fish called inamer when catching fish in the pond during low tide. Even when cooked or	Remedy made from grated coconut, kneaded, strained, filtered, and then drunk

						grilled, it is still poisonous.	
17	amsam	Bulu babi/ Landak laut /Sea urchin *Pedicellariae*	Organisms can be spiny and poisonous	Types of venomous spiny organisms	prickly, but can be boiled/grilled and eaten inside	Avoiding the organisms' spines while walking on the reef	Cassava is grated and applied to the tip of a spear to extract its poison
18	inusem	Bulu kecil	Organisms can be spiny and poisonous	Types of venomous spiny organisms	prickly but can be boiled/grilled and eaten inside	Avoiding the organisms' spines while walking on the reef	Cassava is grated and applied to the tip of a spear to extract its poison
19	Manam	Bintang laut berduri	Organisms can be spiny and poisonous	Starfish category, but its spines are poisonous and painful	This type of organism has very poisonous and extremely painful spines	Avoiding the thorns of marine life when walking on the cora	Cassava is grated and applied to the tip of a spike to extract its poison.
	Robeiber	Biota pembor	Organisms can be spiny and poisonous	Spiny and painful creatures	Types of organisms pierce and leave the coral clear the marks of their stings	Avoiding the thorns of marine life when walking on the coral	Cassava is grated and applied to the tip of a spear to extract its poison
20	worndap	Ubur ubur (Jellyfish)	There are five types of poisonous jellyfish	Jellyfish. When they stick to your body, it hurts a lot	Poisonous jellyfish that burn the skin and are hot	Avoiding jellyfish while swimming in the sea	Cassava is grated and applied to the tip of a spike to extract its poison.
21	Sai	Zoanthid	Very itchy on the skin	It hurts a lot when it sticks to the body	poisonous and burns the skin and is hot	Avoid while diving because it sticks to the coral	The cassava is grated and applied to the puncture wound
22	Arwamdam soren	Daun pakis laut Hydroid	Fry was found in murky waters	It hurts a lot when it sticks to the body	toxic and burns the skin and causes heat	Avoid while diving because it sticks to the coral	Cassava is grated and applied to the tip of a spear to extract its poison.

23	Mamsopapir	Udang laut	Young corals were found in areas with seaweed	Somewhat similar to shrimp, capable of making a hole up to 50 cm deep	Avoid its bite because it is very painful	Avoid while diving because it sticks to the coral	Cassava is grated and applied to the tip of a spike to extract its poison.
24	Ros For	Trumbu Karang api (Fire Coral)	This coral is yellow	Same as other corals	Burning skin and painful	Avoid while diving because it sticks to the coral	Cassava is grated and applied to the tip of a spear to extract its poison.

Local Biak naming has the following characteristics:

- Onomatopoeic
- Physically descriptive
- Descriptive of pain experiences
- Moral warnings

3.2. Cultural Meaning of Naming Poisonous Fish

Naming poisonous fish serves as:

- A hazard navigation system in waters.
- A collective memory of experiences of injuries/stings.
- Ecological knowledge for children who accompany their parents to the sea.
- Strengthening coastal cultural identity related to the human–sea relationship.
- A conservation mechanism: some poisonous organisms are not hunted, keeping their populations stable.

Toponymy is not just a name, but an ecological knowledge system passed down through generations to the present.

4. Conclusion

The toponyms for naming fish and poisonous organisms in Biak are a combination of ecological experience, local knowledge, and cultural values. These names serve as an effective self-protection system for coastal communities. This study emphasizes the importance of documenting fish and poisonous organism toponyms in the Biak language, along with images, complemented by traditional medicine as local knowledge, as a form of cultural and ecological conservation

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

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