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## THE CASE OF RH *PHYLLOMEDUSA BICOLOR* - SAPO VACINA

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**The green toad** - *phyllomedusa bicolor* is the largest species of the genus *Hylidae* family , which occurs in the Amazon [ 1 ] . It can be found in almost all Amazonian countries, such as Guianas, Venezuela, Colombia, Peru, Bolivia and Brazil. Especially during the rainy season, under trees near the streams. Where they croak all night, announcing rain the next day. But it is at dawn that they are "harvested" in order to remove their cutaneous secretions, to make the "toad vaccine".

### Traditional Use

Taking the toad vaccine is an ancient practice for medicinal purposes, widespread among the indigenous peoples of Brazil and Peru. The most sought after purpose is to "take panema", that is, to ward off bad luck in hunting and with women.

There are variations on the rituals and names given to the green frog. In the ancient history of the Kaxinawá, the toad kampu (name used by the Kaxinawá people), was the head of the "nixi pëi", drink prepared with the *Banisteriopsis caapi* vine (see also the [case of Ayahuasca](#)). Katukina, never kill him, because they say that they can be stung by snakes, because their poison is removed from the kambô toad. For the Ashaninka, when the wapapatsi toad sings near the house, the owner has to catch it, burn the wrists and sleep. Early on, you must prepare a very strong porridge and tap on the frog's back so that it releases the poison that will be passed on the skin. However, the remedy will only work if the hunter follows the rules.

The toad vaccine is considered a remedy for many evils by the traditional populations of the Juruá valley, healing from yellowing to pains in general. Today, the toad vaccine is also used by rubber tappers and has been applied by some healers in the cities of Cruzeiro do Sul / AC and Rio Branco / AC.

The healer secretes the frog in a wooden spatula



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Applying small burns to the skin with a piece of red-hot liana



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Applying secretion to burns



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The effect of the frog's vaccine is short, but very strong: "a strong heat wave that goes up through the body to the head. Dilation of the blood vessels seems to cause faster blood circulation, leaving the face red and then pale, the pressure low, and may cause nausea, vomiting and / or diarrhea. Lasting about 15 minutes. Unpleasant sensation, which gradually returns to normal, and the person feels lighter, as if he had done a good cleaning, causing a greater disposition.

## International

research Scientific research has been carried out on the properties of the secretion of *phyllomedusa bicolor* since the 1980s or earlier. The first to "discover" the properties of secretion for modern science, was a group of Italian researchers [ 3,4 ] . Samples of the frogs were taken from Peru to a researcher in the USA [ 5 ] . (Researcher who had previously researched and patented substances frog *Epipedobates tricolor* , traditionally used by the indigenous people of Ecuador. Also see on the page **most cases** ).

There have also been published researches on the properties of secretion by French and Israeli researchers [ 6 ] . More recently, the **University of Kentucky** (USA) is researching (and patenting) one of the substances found in frog secretion in collaboration with the pharmaceutical company **ZymoGenetics** . [ 7 ]

## Surprising results

Research has revealed that the secretion of *phyllomedusa bicolor* contains a number of highly effective substances, the main being dermorphina and deltorfina, belonging to the group of peptides. These two peptides were unknown before the research of *phyllomedusa bicolor*. Dermorphine is a potent analgesic and deltorphin can be applied in the treatment of Ischemia. (a type of lack of blood circulation and lack of oxygen, which can cause strokes). The frog's secretory substances also have antibiotic and immune-strengthening properties, and have also shown great power in the treatment of Parkinson's disease, AIDS, cancer, depression and other diseases. Deltorfina and Dermorphina are now being produced synthetically and laboratories can purchase them through online purchase. ( **Click here for a sales site** )

## PATENTS

(patents containing the words " *phyllomedusa bicolor* " and / or deltorphin and / or dermorphin in the title and / or description)

Registered by	Registered where	Publication date	Title	Number (Click the number for more information provided by <a href="mailto:sp@cenet">sp @ cenet</a> and <a href="http://USPTO">USPTO</a> )
UNIV KENTUCKY RES FOUND (US) *	WIPO - worldwide	12/06/2003	Protection against ischemia and reperfusion injury	<b>WO0222152</b>
University of Kentucky Research Foundation (Lexington, KY); * ZymoGenetics (Seattle, WA) *	U.S	04/30/2002	Method for treating cytokine mediated hepatic injury	<b>US 6,380,164</b>
University of Kentucky Research Foundation (Lexington, KY); * ZymoGenetics (Seattle, WA) *	U.S	11/25/2001	Method for treating ischemia	<b>US 6,294,519</b>
UNIV KENTUCKY RES FOUND (US) *	WIPO - worldwide	11/11/1999	METHOD FOR TREATING ISCHEMIA	<b>WO9956766</b>
UNIV KENTUCKY RES FOUND (US) *	WIPO -	11/11/1999	METHOD FOR TREATING CYTOKINE	<b>WO9956766</b>

	worldwide		MEDIATED HEPATIC INJURY	
Inventors: BISHOP PAUL D (US); KINDY MARK S (US); OELTGEN PETER R (US); SANCHEZ JUAN A (US) *	WIPO - worldwide	05/09/2002	USE OF D-LEU DELTORPHIN FOR PROTECTION AGAINST ISCHEMIA AND REPERFUSION INJURY	<b>WO0230450</b>
Mor; Amram (Jerusalem, IL) *	U.S	09/27/2002	Peptides for the activation of the immune system in humans and animals	<b>US 6,440,690</b>
ASTRA AB (SE) *	U.S	11/02/1997	Dermorphin analogs having pharmacological activity	<b>US5602100</b>
IAF BIOCHEM INT (CA) *	European Union, United States	10/01/1990	Dermorphin analogs, their methods of preparation, pharmaceutical compositions, and methods of therapeutic treatment using the same.	<b>EP0350221 US5312899</b>
DAINIPPON PHARMACEUT CO LTD *	Japan	5/17/1989	DERMORPHIN-RELATED PEPTIDE	<b>JP1125399</b>

## Concern of traditional populations

There is a growing concern of the forest peoples with the use of biological knowledge and resources, which they use traditionally, by large companies. This concern was articulated, among others, at the **II Inter-institutional Meeting of the Peoples of the Juruá Acreano Valley Forest**, in April / May 2003. The concern with the patenting of the frog's vaccine was mainly instigated with a Globe Reporter article, / 2002. Since then, indigenous representatives of the region have requested that this case be investigated.

If you have information that can help us with this research, please send it to [info@amazonlink.org](mailto:info@amazonlink.org)

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