A PHARMACOLOGICAL COMPARISON OF *STRYCHNOS GUIANENSIS* AND CURARE COMPOUNDS ON THE NEUROMUSCULAR TRANSMISSION

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Usually a moderately-sized liane, *Strychnos guianensis* (Aubl.) Martius occurs in forests, more especially along creeks and small rivers throughout the middle and upper Rio Orinoco basin and entire Amazon basin (1). Among the plants of the *Strychnos* genus, this *Strychnos* is known to be one of the principal ingredients of the curare produced by numerous Indian tribes. This species contains a group of peculiar alkaloids characterized by their bright orange colour which becomes green-blue when sprayed with sulphate ceric. Our study was carried out to compare the activity of the crude quaternary alkaloids with other curare compounds or reference substances and to quantify it.

The crude quaternary alkaloids extract was injected intravenously in rats (jugular vein) whose medium wheight was 250 g. An inhibitory effect on the neuromuscular transmission (sciatic-gastrocnemius) was observed. The amount required to produce a complete inhibition ranged from 8 to 12 mg/kg.This dose doesn't classify *Strychnos guianensis* among the very strong curares (2). However, preliminary observations suggest that, the rat, maintained alive by respiratory assistance, doesn't recover the neuromuscular transmission in spite of repeated injections of a cholinesterases inhibitor (physostigmine) (3). Other reference curares were tested in the same experimental conditions. The amounts required for a total inhibition were weaker and their effects reversed by physostigmine (Table1).

In conclusion, the crude quaternary alkaloids extract of *Strychnos guianensis* showed a pronounced muscle-relaxant activity in vivo which was not antagonized by physostigmine. So, it appears that *Strychnos guianensis* alkaloids operate by a different mechanism from that of bis-quaternary alkaloids of *Strychnos toxifera* (Calabash) which act by competition with acetylcholine for the nicotinic receptors. Future works will probably allow to elucidate the mechanism of action of this crude quaternary extract and to identify the main active principles of the plant.

Table 1 : Activity of curares and reference substances.

Name	Injected doses	Inhibition (%age)	Recovery after physostigmine (%age)
*Strychnos guianensis**	8 to 12 mg/kg	100	0
Suxamethonium	0.171 mg/kg	100	0
d-Tubocurarine	0.15 mg/kg	100	100
Alloferine	0.25 mg/kg	100	40
Curarine**	0.75 mg/kg	100	80
Curare calabash*** Venezuela	2.1 mg/kg	100	100

* quaternary alkaloids extract ; ** Purified extract containing mainly c-curarine ; *** Quaternary alkaloids of Calabash

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