

Appendix 1. Occurrence of alkaloids in skin extracts of individual *Ranitomeya imitator*, *Ranitomeya variabilis*, *Ranitomeya fantastica*, and *Ranitomeya summersii* arranged by mimetic location. Alkaloid quantities are as follows: **major alkaloids** (> 50 µg per skin), **minor alkaloids** (5-50 µg per skin), and **trace alkaloids** (< 5 µg per skin). The number in parentheses following an entry indicates the number of isomers.

Location Species	Frog	Alkaloid Quantity	Alkaloids
			Ant origin: HTX; DHQ; N-Me-DHQ; 4,6-Q; 3,5-I. Mite origin: PTX; DesMe PTX; 5,8-I; 5,6,8-I; 1,4-Q; Unclass. Unnown origin: OHQ; Izidine.
Tarapoto, San Martin <i>Ranitomeya imitator</i>	1	Major	HTX 259A, 261A, 283A, 285A ; DHQ 243A (4).
		Minor	HTX 235A ; DHQ 219A (2), 267L ; N-MeDHQ 237U ; 4,6-Q 195C (2); 3,5-I 223AB (3); DesMe PTX 249G .
		Trace	DHQ 249E ; 5,8-I 219J ; 5,6,8-I 231B .
	2	Major	HTX 235A (3); DHQ 219A (5), 243A (5).
		Minor	HTX 285A (2), 287A ; DHQ 221D (2), 269AB .
		Trace	HTX 259A, 261A, 283A (2); DHQ 249E (2); 3,5-I 223AB (3); Unclass 231I .
	3	Major	HTX 235A (3); DHQ 219A (3).
		Minor	DHQ 221D (2).
		Trace	5,8-I 219J ; Unclass 231I .
	4	Major	DHQ 219A (4), 243A (7).
		Minor	HTX 235A (2), 259A ; DHQ 223F (2); 3,5-I 223AB (3); Unclass 231I .
		Trace	Unclass 209G .
	5	Major	DHQ 219A (3), 243A (6).
		Minor	HTX 235A (3); DHQ 223F ; 3,5-I 223AB (3).
		Trace	HTX 259A ; 4,6-Q 195C (2); Unclass 231I .
Tarapoto, San Martin <i>Ranitomeya variabilis</i>	1	Major	HTX 235A (2).
		Minor	5,6,8-I 239Z (2).
		Trace	HTX 283A, 285A ; DHQ 219A, 223F .
	2	Major	
		Minor	
		Trace	HTX 235A ; DHQ 223F, 243A .

3	Major Minor Trace	HTX 259A, 261A, 285A; PTX 267A; 5,6,8-I 231B. HTX 235A(2), 283A; DHQ 221B, 223F, 251A; 4,6-Q 195C; PTX 251D; 5,6,8-I 239Z.
4	Major Minor Trace	HTX 235A(2); PTX 267A. HTX 259A, 261A(2), 283A(3), 285A(2); DHQ 223F; PTX 251D; 5,6,8-I 231B, 239Z(2). DHQ 243A, 251A; 4,6-Q 195C; PTX 237A.
5	Major Minor Trace	HTX 259A, 285A(2); DHQ 221B, 223F, 243A, 251A; 4,6-Q 195C; PTX 267A; 5,6,8-I 231B. HTX 235A, 261A, 283A; PTX 251D; 5,6,8-I 239Z.

Pongo de Cainarachi, San Martin <i>Ranitomeya imitator</i>	1	Major Minor Trace	HTX 235A; DHQ 243A(3). HTX 259A, 261A(2), 285A, 291A; DHQ 219A(2), 223Q. DHQ 219A; 3,5-I 253T; 5,6,8-I 237C.
	2	Major Minor Trace	DHQ 219A(4); 243A(2). HTX 235A, 259A, 261A(2), 285A; DHQ 223Q(2); 3,5-I 223AB(2). 5,6,8-I 223A, 237C, 239Z.
	3	Major Minor Trace	HTX 259A; DHQ 223Q, 243A(2). HTX 235A, 261A(2), 285A, 291A; DHQ 219A; 5,6,8-I 223A.
	4	Major Minor Trace	HTX 259A, 291A; DHQ 243A(2). HTX 235A, 261A, 285A; DHQ 219A, 223Q; 3,5-I 223AB(2).
	5	Major Minor Trace	HTX 259A, 291A; DHQ 223Q(2), 243A(2). HTX 235A, 261A(2), 285A.
Pongo de Cainarachi, San Martin	1	Major Minor	DHQ 219A(2), 223Q; 3,5-I 181A, 223AB(3), 253T(2).

<i>Ranitomeya imitator</i>		Trace	HTX 235A, 259A ; DHQ 249E, 253T .
	2	Major Minor Trace	HTX 235A, 259A, 261A . HTX 285A, 291A ; DHQ 219A, 243A ; 3,5-I 223AB(2), 253T .
	3	Major Minor Trace	DHQ 223Q . HTX 259A ; DHQ 219A, 243A ; 4,6-Q 195C ; 3,5-I 253T ; 5,6,8-I 231B ; 1,4-Q 231A .
	4	Major Minor Trace	HTX 291A ; 3,5-I 253T ; 5,6,8-I 237C . HTX 259A, 261A ; DHQ 223Q ; 3,5-I 223AB(3) .
	5	Major Minor Trace	3,5-I 223AB(3) . 3,5-I 253T ; 5,6,8-I 237C .
Sauce, San Martin <i>Ranitomeya imitator</i>	1	Major Minor Trace	DHQ 243A(3) . HTX 259A, 261A, 285A(2), 291A ; 3,5-I 223AB(2) ; Unclass 209G . DHQ 267L, 269AB ; 5,8-I 243B ; 1,4-Q 257D .
	2	Major Minor Trace	DHQ 243A(3) . 3,5-I 223AB(3) . HTX 259A, 261A, 285A, 291A ; DHQ 219A, 267L ; 5,8-I 243B ; 1,4-Q 257D ; Unclass 209G .
	3	Major Minor Trace	DHQ 243A(4) ; 3,5-I 223AB(3) . HTX 291A ; DHQ 219A, 269AB ; Unclass 209G(2) . HTX 259A, 261A, 285A ; DHQ 267L ; 4,6-Q 195G ; 5,8-I 243B ; 1,4-Q 257D ; Unclass 235P, 231I .
	4	Major Minor Trace	3,5-I 223AB(3) . HTX 291A ; DHQ 243A(2), 269AB ; Unclass 209G(2) . HTX 259A, 285A ; 4,6-Q 195G ; 5,8-I 243B ; 1,4-Q 257D ; Izidine 239X(2) ; Unclass 235P .
	5	Major Minor Trace	DHQ 219A(3), 243A(4) . 3,5-I 223AB(3) ; Unclass 209G . HTX 235A, 259A ; DHQ 209J, 267L ; 4,6-Q 195G ; 5,6,8-I 221P ; 1,4-Q 257D ; Unclass 231I .

Sauce, San Martin <i>Ranitomeya summersii</i>	1	Major Minor Trace	HTX 283A, 285A ; 3,5-I 223AB ; Unclass 209F .
	2	Major Minor Trace	HTX 283A, 285A(2) ; 3,5-I 223AB(2) ; Unclass 209F .
	3	Major Minor Trace	HTX 283A, 285A(2) ; 3,5-I 223AB(2) .
	4	Major Minor Trace	DHQ 193D . HTX 283A, 285A ; 3,5-I 223AB(2) .
	5	Major Minor Trace	HTX 259A, 283A, 285A . HTX 235A ; DHQ 243A(2) . HTX 261A(2) ; N-Me-DHQ 237U ; 3,5-I 223AB(2) ; PTX 323A ; 5,8-I 243B ; 1,4-Q 257D ; OHQ 193D .
Varadero, Loreto <i>Ranitomeya imitator</i>	1	Major Minor Trace	DHQ 219A(2) . DHQ 243A(3) ; 5,6,8-I 263D . HTX 235A, 259A, 291A ; Unclass 209G, 231I .
	2	Major Minor Trace	DHQ 219A(3) . HTX 235A, 259A, 261A, 285A, 291A ; DHQ 243A(3) ; Unclass 209G . DHQ 223F ; 5,6,8-I 263D ; Unclass 231I .
	3	Major Minor Trace	DHQ 219A(2) . HTX 235A, 291A ; N-Me-DHQ 237U(2) . HTX 259A, 281A ; DHQ 223F, 243A(2) ; 4,6-Q 195C ; 3,5-I 223AB(2) ; 5,6,8-I 263D ; Unclass 209F, 231I .
	4	Major Minor Trace	DHQ 219A(3) . HTX 235A, 291A ; DHQ 243A(3) ; 4,6-Q 195C(2) ; Unclass 209F, 231I . HTX 259A, 281A ; DHQ 211A, 223F ; 3,5-I 223AB ; 5,6,8-I 263D .

	5	Major Minor Trace	HTX 291A ; DHQ 219A (2). HTX 235A , 259A ; DHQ 243A ; 5,6,8-I 263D . HTX 261A , 281A ; Unclass 209F , 231J .
Varadero, Loreto <i>Ranitomeya fantastica</i>	1	Major Minor Trace	HTX 291A . HTX 235A (2), 259A (2), 285A ; 5,6,8-I 263D . HTX 261A ; DHQ 219A , 223F ; 5,6,8-I 253H .
	2	Major Minor Trace	HTX 291A ; DHQ 223F (3). HTX 235A . DHQ 219A ; 3,5-I 223AB ; 5,6,8-I 253H .
	3	Major Minor Trace	HTX 259A , 285A , 291A . HTX 235A (2), 261A . HTX 283A ; DHQ 219A , 243A ; 5,6,8-I 253H .
	4	Major Minor Trace	HTX 235A (2), 291A . DHQ 223F (2). DHQ 219A (2); 3,5-I 223AB ; 5,6,8-I 253H ; Unclass 209F .
	5	Major Minor Trace	HTX 259A , 285A , 291A ; DHQ 243A . HTX 235A , 261A (2). DHQ 219A (2), 223F , 269B ; 3,5-I 223AB .

HTX (histrionicotoxin); DHQ (2,5-disubstituted decahydroquinoline); N-Me-DQH (N-methyl-decahydroquinoline); 4,6-Q (4,6-disubstituted quinolizidine); 3,5-I (3,5-disubstituted indolizidine); PTX (pumiliotoxin); DesMe PTX (desmethylpumiliotoxin); 5,8-I (5,8-disubstituted indolizidine); 5,6,8-I (5,6,8-trisubstituted indolizidine); 1,4-Q (1,4-disubstituted quinolizidine); OHQ (octahydroquinoline); Izidine (Unclassified Izidines); Unclass (Unclassified alkaloids).