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Occurrence of New Imidazolealkylamines (Spinaceamine and 6-Methylspinaceamine) in Skin Extracts of *Leptodactylus pentadactylus labyrinthicus*[1]

In the course of a systematic study on biologically active amines in the amphibian skin, enormous amounts of histamine and related imidazolealkylamines were found in acetone extracts of the skin of *Leptodactylus pentadactylus labyrinthicus*, a South-American amphibian collected in Misiones (Argentina).

Chromatography on alkaline alumina column, paper chromatography, colour reactions and bioassay, carried out in parallel on the natural amines and on the corresponding synthetic compounds prepared by one of us (Vitali), have permitted the certain identification in the *Leptodactylus* extracts of the following imidazolealkylamines: histamine; 4(2-methylaminoethyl)-imidazole or N′-methylhistamine; 4(2-dimethylaminoethyl)-imidazole or N′,N′-dimethylhistamine; 4,5,6,7-tetrahydroimidazo-[5,4-*c*]pyridine and 6-methyl-4,5,6,7-tetrahydroimidazo-[5,4-*c*]pyridine.

Owing to its strict relation to spinacine, the aminoacid discovered by ACKERMANN and MOHR[2] in the shark *Acanthias vulgaris* and by ACKERMANN[3] in the crab *Crango vulgaris*, we suggest the name *spinaceamine* for 4,5,6,7-tetrahydroimidazo[5,4-*c*]pyridine, and that of *6-methylspinaceamine* for its 6-methyl derivative.

The accompanying Table shows the Rf values of the above amines with two different solvent systems and the colour reactions produced on paper by the Pauly reagent and the Folin reagent for aminoacids.

Histamine, N′-methylhistamine and N′,N′-dimethylhistamine displayed the well known potent stimulant effect on the guinea-pig ileum; spinaceamine and 6-methylspinaceamine were practically inactive[4].

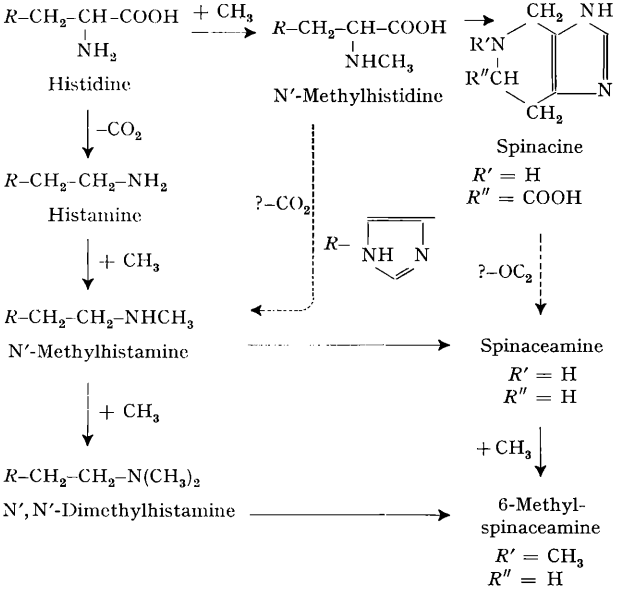
The approximate content in imidazoalkylamines of the dry skin obtained from 5 specimens of *Leptodactylus pentadactylus labyrinthicus* captured in Misiones in September

	Rf values		Colour reactions	
	Methylethylketone + pyridine + water + 30% methylamine (65:15:10:0.5)	1-Pentanol + pyridine + water + 30% methylamine (40:40:10:1)	Folin reagent	Pauly reagent
Histamine	0.55	0.36	grey-blue	pink red
N'-Methylhistamine	0.50	0.53	rose-pink	pink red
N',N'-dimethylhistamine	0.68	0.67	? (pale pink)	pink red
Spinaceamine	0.25	0.37	rose-pink	orange yellow turning
6-Methylspinaceamine	0.51	0.56	emerald green	into orange red

1961 was as follows (in μg of free bases per g dry tissue): histamine 360–400, N′-methylhistamine 250–300, N′,N′-dimethylhistamine 100–120, spinaceamine 60–70, 6-methylspinaceamine 200–220.

The possible biochemical correlations among the different imidazolealkylamines of the *Leptodactylus* skin are illustrated below.

Details on methods and data obtained in other *Leptodactylus pentadactylus* species as well as in other amphibians will be presented in the paper *in extenso*, together with a full discussion of results.



Riassunto. Estratti di pelle di *Leptodactylus pentadactylus labyrinthicus* contengono elevati quantitativi di imidazolalchilamine, fra cui due derivati imidazo-*c*-piridinici finora ignoti in natura: la spinaceamina e la 6-metilspinaceamina.

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[2] D. ACKERMANN and M. MOHR, Z. Biol. *98*, 73 (1936).
[3] D. ACKERMANN, Z. physiol. Chem. *328*, 275 (1962).
[4] G. BERTACCINI and T. VITALI, to be published.