

nol, ethanol, and phenol, but it is insoluble in the higher alcohols, ether, benzene, and chloroform.

3. The activity is not appreciably affected by autoclaving, aeration, boiling, or by oxidizing agents such as 3% hydrogen peroxide, or ammoniacal silver, and is only slightly affected by bromine in the cold.

4. Treatment with acetic anhydride caused only slight loss of activity.

5. The growth factor probably does not contain sulfur.

6. It is not inorganic since it is destroyed by both wet and dry ashing.

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RECEIVED NOVEMBER 14, 1936

[CONTRIBUTION FROM THE DEPARTMENT OF BIOCHEMISTRY, UNIVERSITY OF CHICAGO]

Studies in Proteins. V. A Crystalline Globulin from the Paradise Nut, *Lecythis Zabucayo*

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Introduction

The Paradise nut, *Lecythis zabucayo*, is a rugose, fusiform nut resembling the Brazil nut in size and taste. It is grown in Brazil and Guiana where it is known as the sapucaya or monkey-pot nut. The natives consider the flavor of the Paradise nut to be superior to that of the Brazil nut, consequently few of them are exported but they can be obtained occasionally on the Chicago market.

Since the Brazil nut yields a crystalline globulin, excelsin, it was thought possible that the Paradise nut might also yield a crystalline globulin.

Method.—A protein was isolated from Paradise nuts by extracting the defatted seed-meal with a saturated solution of sodium chloride and precipitating the protein with ammonium sulfate. The precipitate formed by saturating the protein solution with ammonium sulfate was redissolved in water and dialyzed against running distilled water at about 5°. Details of the method have been given elsewhere.¹ During dialysis crystals of globulin formed in the viscose bags. The crystals were thick, hexagonal plates. The edges of the upper and lower surfaces appeared to be beveled. Three of the angles of the sides were slightly more acute than those of the other three.

(1) Saunders, *THIS JOURNAL*, **53**, 696 (1931).

Experimental

Determinations of nitrogen distribution were made in the usual way. The results given below represent an average of several determinations.

	Protein, %		Total N, % Paradise-nut globulin
	Paradise-nut globulin	Excelsin ^a	
Amide N	1.42	1.48	9.12
Humins N	0.33	0.17	2.10
Total N in phospho- tungstic acid ppt.	5.54	5.76	35.60
α -Amino N in phos- photungstic acid ppt.	2.06		13.28
Total N in filtrate (Kjeldahl)	8.46	10.97	53.51
α -Amino N in filtrate (Van Slyke)	8.43		53.44
Total N	15.75	18.30	
Histidine N (colorimetric)			5.23
Cystine N (gravimetric)			0.47

^a Osborne and Harris as quoted by Plimmer, "Chemical Constitution of the Proteins," 2nd ed., Longmans, Green and Co., New York, 1924, p. 131.

Summary

A crystalline globulin has been isolated from the Paradise nut (*Lecythis zabucayo*).

The nitrogen distribution of this protein has been determined and found to be the same as excelsin except for mono-amino nitrogen.

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RECEIVED NOVEMBER 27 1936