

CYANOGENIC PLANTS FROM ARGENTINA

DAVID S. SEIGLER¹

Department of Botany, The University of Illinois, Urbana, Illinois

JORGE D. COUSSIO and RUBÉN V. D. RONDINA

Cátedra de Farmacognosia, Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires, Junín 956, Buenos Aires, Argentina

ABSTRACT.—Forty-six samples (thirty-nine species) of primarily Argentine plants produced a positive test for hydrogen cyanide (Guignard). Of these, approximately 25 have not previously been reported as cyanogenic.

Because of their toxicity, economic importance, and widespread occurrence (1–8), we undertook the present study of cyanogenic plants of the Argentine flora. These initial results are based on the Guignard test. We are currently attempting to isolate and characterize several of the compounds responsible for cyanogenesis.

We tested a number of plant that were available to us from materials in the Cátedra de Farmacognosia, the Jardín Botánico “Carlos Thays”, the Instituto Miguel Lillo, and from field trips to Tucumán and Corrientes. Voucher specimens of these are deposited in the University of Illinois Herbarium. The results of these tests are given in table 1. Of approximately 300 samples tested, 46 representing 39 species were positive. We have not included data for negative tests as positive ones are more indicative of the plants genetic potential, i.e., what biosynthetic pathways exist and can be operative.

In Argentina, the major families which contain cyanogenic plants seem to be the Gramineae, Euphorbiaceae, Leguminosae and Sapindaceae.

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¹Fulbright Hays Lecturer Researcher in the Cátedra de Farmacognosia, July 1976–December 1976.

TABLE 1. *Plants which produced a positive Guignard test for HCN.*^a

Plant	Family	Plant part	Source	Reference to previous work	Test results
<i>Rollinia emarginata</i> Schlecht.....	Annonaceae	leaves	Paso de la Patria, Corrientes D. Seigler <i>et al.</i> 10150	—	++
<i>Cnidioscolus enicodendron</i> Griseb.....	Euphorbiaceae	leaves	Instituto Miguel Lillo, Tucumán	—	++
<i>Cnidioscolus toasoides</i> L. M. Johnston.....	Euphorbiaceae	leaves	Paso de la Patria, Corrientes D. Seigler <i>et al.</i> 10154	—	++
<i>Jatropha hieronymii</i> Ktze.....	Euphorbiaceae	leaves	Instituto Miguel Lillo, Tucumán	—	+
<i>Jatropha macrocarpa</i> Griseb.....	Euphorbiaceae	leaves	Instituto Miguel Lillo, Tucumán	—	++
<i>Phyllanthus acuminatus</i> Vahl.....	Euphorbiaceae	leaves	Instituto Miguel Lillo, Tucumán	—	++
<i>Manihot flabellifolia</i> Pohl.....	Euphorbiaceae	leaves	Jardín Botánico "Carlos Thays" Buenos Aires	9	+
<i>Sapum haematos pernum</i> Muell. Arg. (2 samples).....	Euphorbiaceae	leaves, flowers	INTA, Mercedes, Corrientes; Near Tapia, Peia, Tucumán	—	+
<i>Agropyron scabrifolium</i> (Doell.) L. Parodi (3 samples).....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires; Castelar, Peia. Buenos Aires; J. Hunziker, II 617, Facultad de Ciencias Exactas, Universidad de Buenos Aires	—	++
<i>Echinochloa pyramiditis</i> (Lam.) Hitch. et Chase.....	Gramineae	leaf-culm	INTA, Castelar, Peia, Buenos Aires	—	++
<i>Chloris gayana</i> Kth.....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires	—	++
<i>Cortaderia selloana</i> (Schult.) Asch. et Graeb.....	Gramineae	leaf	Jardín Botánico "Carlos Thays" Buenos Aires	10-14	++
<i>Cynodon dactylochryum</i> R. Pilger.....	Gramineae	leaf-culm	Buenos Aires	10-13, 15-19	++
<i>Digitalia phaeolix</i> (Trin.) L. Parodi.....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires	10 13	(+)
<i>Bambusa multiplex</i> (Lour.) Raeuschel.....	Gramineae	leaves	Jardín Botánico "Carlos Thays" Buenos Aires	—	++
<i>Lamprolathys hieronymii</i> (O.K) Pilger.....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires	10-13, 20	++
<i>Leptochloa chloritiformis</i> (Huek.) Parodi.....	Gramineae	leaf-culm	INTA, Castelar, Peia, Buenos Aires	—	++
<i>Lycium spartium</i> Loell.....	Gramineae	flowers	INTA, Castelar, Peia, Buenos Aires	—	++
<i>Lycium spartium</i> Loell.....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires	—	+
<i>Melica argyrea</i> Huek.....	Gramineae	leaf-culm	Jardín Botánico "Carlos Thays" Buenos Aires	26, 39	++
<i>Melica sarmentosa</i> Nees.....	Gramineae	leaf-culm	Buenos Aires	26, 39	++
<i>Panicum prionitis</i> Nees.....	Gramineae	leaf	Jardín Botánico "Carlos Thays" Buenos Aires INTA, Castelar, Peia, Buenos Aires	—	+

<i>Phalaris tuberosa</i> L.	Gramineae	leaf-eulm	Jardín Botánico "Carlos Thays", Buenos Aires	—	+
<i>Saccharum spontaneum</i> L.	Gramineae	leaf	INTA, Castelar, Peín, Buenos Aires (Introduced)	—	++
<i>Sasa variegata</i> Camus	Gramineae	leaf-eulm	Jardín Botánico "Carlos Thays", Buenos Aires (Introduced)	—	+
<i>Sorghum atratum</i> L. Purodi	Gramineae	leaf-eulm	Jardín Botánico "Carlos Thays", Buenos Aires	10-13, 21	++
<i>Sitpa hyalina</i> Nees	Gramineae	leaf-eulm	INTA, Castelar, Peín, Buenos Aires	22	+
<i>Trachypogon montigari</i> (H.B.K.)	Gramineae	leaf-eulm	Jardín Botánico "Carlos Thays", Buenos Aires	—	+
<i>Acacia aroma</i> Gill. (2 samples)	Leguminosae	leaves	Near Tapia, Peín, Tucumán D. Seigler and F. Vervoort 10103; Corrientes	—	++
<i>Acacia atramentaria</i> Benth. (2 samples)	Leguminosae	leaves	Near Tapia, Peín, Tucumán D. Seigler and F. Vervoort 10112;	—	++
<i>Anadenanthera macracarpa</i> (Benth.) Speg.	Leguminosae	leaves	INTA, Castelar, Peín, Buenos Aires Paso de la Patria, Peín, Corrientes	—	++
<i>Groffiera decorticans</i> (Gill. ex Hook. et Arn.) Burkart	Leguminosae	leaves	D. Seigler <i>et al.</i> 10151	—	(+)
<i>Hobocarya balansae</i> Mich.	Leguminosae	leaves	Jardín Botánico "Carlos Thays", Buenos Aires	23, 24	++
<i>Eucalyptus cladocalyx</i> F. Muell.	Myrtaceae	leaves	Jardín Botánico "Carlos Thays", Buenos Aires	25	++
<i>Nimenea americana</i> L.	Olacaceae	leaves	INTA, Castelar, Peín, Buenos Aires (Introduced)	28, 31-33	++
<i>Passiflora caerulea</i> L.	Passifloraceae	leaves	Paso de la Patria, Peín, Corrientes D. Seigler <i>et al.</i> 10138	28, 21-33	++
<i>Photinia serrulata</i> Lindl.	Rosaceae	leaves	Paso de la Patria, Peín, Corrientes D. Seigler <i>et al.</i> 10138	27-30	++
<i>Alliophylax edulis</i> (St. Hil.) Radlk. (2 samples)	Sapindaceae	leaves	INTA, Castelar, PCLA, Buenos Aires, Jardín Botánico "Carlos Thays" Buenos Aires	34	++
<i>Cardiospermum halicacabum</i> L.	Turneraceae	leaves	Jardín Botánico "Carlos Thays", Buenos Aires (Introduced)	28, 35, 36	++
<i>Turnera pinatiffida</i> Juss.	Turneraceae	leaves	Cátedra de Farmacognosia; Jardín Botánico "Carlos Thays"	—	++
		leaves	Buenos Aires	28, 28, 28	++
		leaves	Cátedra de Farmacognosia Near Tapia, Peín, Tucumán D. Seigler and F. Vervoort 10121	—	++

*Cuingard's sodium pierate paper test. (2): fresh plant material was crushed; dried material was then moistened with water. If this procedure failed to yield a positive test, emulsion and/or linamarase was added.

++ ++ very strongly positive, + + strongly positive, (+) weakly positive.

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