

Cyanogenesis in Australian Leguminosae: Herbarium survey of some *Acacia* and Papilionoideae species

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Abstract

Maslin, B.R., Conn, E.E. and Hall, N. Cyanogenesis in Australian Leguminosae: Herbarium survey of some *Acacia* and Papilionoideae species. *Kingia* 1(3): 283-294 (1990). Foliage from 855 *Acacia* and 294 Papilionoideae specimens was tested for its ability to release HCN in the presence of added β -glucosidase. Of the 15 taxa shown to release HCN six were not previously known as cyanogenic, namely, *A. deanei* subsp. *deanei*, *A. polybotrya*, *A. pulchella* var. *pulchella*, *A. pulchella* var. ?, *Canavalia papuana* and *Erythrina vespertilio*. *Acacia dealbata* subsp. *dealbata* was questionably cyanogenic and should be examined further.

Introduction

In a survey of cyanogenesis in Australian species of *Acacia* Conn *et al.* (1985) showed that 44 species were capable of releasing HCN from their foliage in the presence of added β -glucosidase. A majority of these taxa occurred in section *Juliflorae*, i.e. 37 species, where the two aromatic glycosides, sambunigrin and its epimer prunasin, tended to occur in the ratio of about 80:20 (Maslin *et al.* 1988). Lower numbers of cyanogenic taxa occurred in sections *Acacia* (2 spp.), *Botrycephalae* (4 spp.) and *Pulchellae* (1 sp.). For the reasons outlined below it was decided to sample additional herbarium specimens from the latter two sections.

Relatively few specimens of section *Botrycephalae* were tested by Conn *et al.* (1985). However, the study suggested that the incidence of cyanogenesis in this section was lower than in section *Juliflorae* and furthermore, prunasin rather than sambunigrin seemed to be the predominant glucoside. An expanded herbarium survey was undertaken in order, firstly to obtain a better assessment of the incidence of cyanogenesis in the section, and secondly, to obtain localities for cyanogenic individuals so that material could be collected for analysis to enable the glycosides to be identified.

Most cyanogenic infraspecific taxa of *A. pulchella* possess the aromatic glycosides sambunigrin and prunasin (Maslin *et al.* 1988). The exception is var. *reflexa* which has the aliphatic glucoside heterodendrin. The existence of more than one biosynthetic pathway for the production of cyanogenic glycosides within a single species is rare and was first reported by Spencer and Seigler (1985) in *Passiflora lutea* L. Because of this discovery in *Acacia* and because we wanted to examine further the phenomenon of polymorphism for cyanogenesis within *A. pulchella*, it was decided to undertake an expanded herbarium survey of this species as a basis for future studies. All known variants of the species were therefore sampled.

Our reason for including some papilionoid species in this study was to provide missing data for a review on cyanogenesis in the Leguminosae. This review is now completed and will be published elsewhere (Seigler *et al.* in press).

Methods

Foliage from herbarium specimens of various *Acacia* and papilionoid legume species was tested for its ability to release HCN in the presence of added β -glucosidase. The methodology employed is described in Conn *et al.* (1985). Specimens sampled are listed in Appendix 1 and are located at the Western Australian Herbarium (PERTH) and the herbarium of the Royal Botanic Gardens, Sydney (NSW).

Results

Appendix 1 lists the 1149 herbarium specimens tested and those giving a positive test for HCN are marked with an asterisk (*). These results are summarized in Table 1 (*Acacia*) and Table 2 (Papilionoideae).

The testing of 855 *Acacia* specimens revealed ten cyanogenic taxa. Of these, four are additional to those recorded by Conn *et al.* (1985), namely, *A. deanei* subsp. *deanei* and *A. polybotrya* (both section *Botrycephalae*) and *A. pulchella* var. *pulchella* and *A. pulchella* var. ? (both section *Pulchellae*). One specimen of *A. dealbata* subsp. *dealbata* (section *Botrycephalae*) reacted very weakly to the Feigl-Anger test and this taxon must be regarded as questionably cyanogenic. This survey also confirmed previous findings that cyanogenesis occurs in *A. deanei* subsp. *paucijuga* and *A. parramattensis* (both section *Botrycephalae*) and *A. pulchella* var. *glaberrima* (typical variant), *A. pulchella* ? var. *glaberrima* (Fitzgerald River variant) and *A. pulchella* var. *goadbyi* (all section *Pulchellae*). All *Botrycephalae* species plus *A. pulchella* var. *pulchella* showed a low incidence of cyanogenesis, i.e. less than 17% of specimens tested were cyanogenic. In the remaining varieties of *A. pulchella* the percentage of cyanogenic to acyanogenic specimens was higher. However, it is noted that in *A. pulchella* ? var. *glaberrima* and *A. pulchella* var. ? only 2 and 4 specimens respectively were tested.

Based on the above findings we conducted field work to acquire fresh material of relevant taxa for chemical analysis. The results of this endeavour and a discussion of the taxonomic significance of cyanogenesis in *Acacia* are presented in Maslin *et al.* (1988).

The 294 Papilionoideae specimens tested represented 62 species of which only five showed cyanogenic members, namely *Canavalia papuana*, *Erythrina vespertilio*, *Goodia lotifolia*, *Lotus australis* and *Lotus cruentus*. The first two species were hitherto not known to be cyanogenic. The percentage of cyanogenesis in specimens of these 5 species varied from 20% to 50%. However, in the case of *Canavalia papuana* and *Erythrina vespertilio* only 5 specimens of each species were tested. The taxonomic significance of cyanogenesis in the Fabaceae is discussed in Seigler *et al.* (in press).

Table 1. Cyanogenic Australian species of *Acacia* section *Botrycephalae* and *Acacia* section *Pulchellae* showing numbers of herbarium specimens which released HCN from their foliage in the presence of added β -glucosidase. These data are additional to those given in Table 1 of Conn *et al.* (1985). Voucher specimens are listed in Appendix 1

Taxon	Section	Herbarium specimens	
		Total no. tested	No. HCN positive
<i>A. dealbata</i> subsp. <i>dealbata</i>	Botrycephalae	49	1 *
<i>A. deanei</i> subsp. <i>deanei</i>	Botrycephalae	41	1 + 2 *
<i>A. deanei</i> subsp. <i>paucijuga</i>	Botrycephalae	26	4
<i>A. parramattensis</i>	Botrycephalae	60	2 + 1 *
<i>A. polybotrya</i>	Botrycephalae	20	1
<i>A. pulchella</i> var. <i>glaberrima</i> (typical variant)	Pulchellae	58	13
<i>A. pulchella</i> ? var. <i>glaberrima</i> (Fitzgerald River variant)	Pulchellae	2	2
<i>A. pulchella</i> var. <i>goadbyi</i>	Pulchellae	20	17
<i>A. pulchella</i> var. <i>pulchella</i>	Pulchellae	72	2
<i>A. pulchella</i> var. ?	Pulchellae	4	4

* Dubious positive, i.e. a very slow, weak Feigl-Anger response.

Table 2. Cyanogenic species of Papilionoideae showing numbers of herbarium specimens which released HCN from their foliage in the presence of added β -glucosidase. Voucher specimens are listed in Appendix 1

Species	Tribe	Herbarium specimens	
		Total no. tested	No. HCN positive
<i>Canavalia papuana</i>	Phaseoleae	5	1
<i>Erythrina vespertilio</i>	Phaseoleae	5	2
<i>Goodia lotifolia</i>	Bossiaeeae	14	5
<i>Lotus australis</i>	Loteae	22	11
<i>Lotus cruentus</i>	Loteae	38	24

References

- Conn, E.E., Maslin, B.R., Curry, S. and Conn, M.E. (1985). Cyanogenesis in Australian species of *Acacia*. Survey of herbarium specimens and living plants. Western Australian Herbarium Research Notes 10: 1-60.
- Maslin, B.R., Dunn, J.E. and Conn, E.E. (1988). Cyanogenesis in Australian species of *Acacia*. *Phytochemistry* 27: 421-428.
- Seigler, D.S., Maslin, B.R. and Conn, E.E. (in press). Cyanogenesis in the Leguminosae. In: C.H. Stirton and J.L. Zarucchi (eds), *Advances in Legume Biology. Monographs in Systematic Botany from the Missouri Botanical Garden, Vol. 29.* Missouri Botanical Garden, St Louis.
- Spencer, K.E. and Seigler, D.S. (1985). Co-occurrence of Valine/Isoleucine - Derived and Cyclopentenoid Cyanogens in a *Passiflora* species. *Biochemical Systematics and Ecology* 13: 303-304

Appendix 1. Herbarium specimens of some Australian species of *Acacia* and Papilionoideae tested for cyanogenic glycosides

Taxa are arranged alphabetically with undescribed section *Botrycephalae* species at the end of *Acacia*. Specimens and taxa giving a positive Feigl-Anger test for HCN are marked with an asterisk (*). Specimens and taxa reacting very weakly to the Feigl-Anger test and thus regarded as dubiously HCN positive are marked with a cross(+). Voucher specimens are listed by collector or date or by institution number. Abbreviations for herbaria: NSW - Herbarium of the Royal Botanic Gardens, Sydney, N.S.W.; PERTH - Western Australian Herbarium, Perth, W.A.

Acacia baileyana

Cunningham, G.M. & Milthorpe, P.L. s.n., 27 July 1974 (NSW); Salasoo, H. s.n., 30 Dec. 1964 (NSW); NSW 95790; NSW 95791; NSW 95794.

A. cardiophylla

Boorman, J. s.n., Dec. 1897 (NSW); Cunningham, G.M. 797 (NSW); Cunningham, G.M. 1400 (NSW); Manten, J.A. s.n., 2 Dec. 1971 (NSW); Morris, A.K. C135 (NSW); Willis, J.H. s.n., 3 Oct. 1969 (NSW); NSW 59121; NSW 65986; NSW 68976 (or 65976); NSW 101234; NSW 104356.

A. chinchillensis

Coveny, R. 6813 (NSW); Hall, N. H77/123 (NSW); Pedley, L. s.n., 6 Dec. 1972 (NSW).

A. chrysotricha

Burgess, P. s.n., 10 May 1970 (NSW); Floyd, A. 766 (NSW); Floyd, A. s.n., 20 July 1961 (NSW); NSW 8153.

A. constablei

Nunnick, A. s.n., 24 Nov. 1981 (NSW); Nunnick, A. s.n., 29 Oct. 1982 (NSW); NSW 53869; NSW 64644; NSW 154168.

+ *A. dealbata*

Benson, D. 311 (NSW); Coveny, R. (NSW 148662); Debenham, C. s.n., Oct. 1960 (NSW); Hartley, T.G. 13387 (NSW); Lassak, E. s.n., 9 Oct. 1978 (NSW); Salasoo, H. s.n. (NSW); Thompson, G. 625 (NSW); NSW 5992; NSW 8178; NSW 8182; NSW 8197; NSW 8302; NSW 8723; +NSW 8781; NSW 29319; NSW 42236; NSW 42250; NSW 43083; NSW 45201; NSW 45202; NSW 45210; NSW 45215; NSW 45217; NSW 47255; NSW 48107; NSW 48117; NSW 48121; NSW 48610; NSW 48611; NSW 49403; NSW 49404; NSW 52613; NSW 52801; NSW 52962; NSW 53006; NSW 53943; NSW 59962; NSW 59996; NSW 60000; NSW 60006; NSW 63232 (or 63252); NSW 67686; NSW 70232; NSW 75420; NSW 78936; NSW 84616; NSW 84387; NSW 100346; Carcoar, Sept. 1882 (NSW).

A. dealbata subsp. *A*

Rodd, A. 1019 (NSW); NSW 84554; NSW 84559; NSW 84567; NSW 84569; NSW 84575; NSW 84584.

A. deanei

Armitage, I.B. 1383 (PERTH); Boorman, J.L. s.n. (PERTH 00463388); Story, R. and Yapp, G. 313 (PERTH); Tindale, M. 63797 (PERTH).

* + *A. deanei* subsp. *deanei*

Armitage, I.B. 1183 (NSW); Atkinson, W.R. s.n., 21 May 1974 (NSW); Benson, D.M. & Pickard, J. 1799 (NSW); Constable, E.F. 7131 (PERTH); Fox, M. 8006001 (NSW); Gittins, C.H. 1163 (NSW); Hall, N. H78/81 (NSW); Hall, N. H79/67 (PERTH); Hall, N. H79/69 (PERTH); Hall, N. H79/82 (*PERTH); Kennedy, B. s.n., 26 Oct. 1978 (NSW); Moore, C.W.E. 6416 (+NSW); Newman, I.V. 905 (NSW); Olsen, I. 3032 (NSW); Pasterfield s.n., Nov. 1975 (NSW); Slade, C. 103878 (PERTH); Story, R. 7425 (NSW); Tindale, M. 63794 (PERTH); Wilson, K. 2459 (NSW); +NSW 4632; NSW 5468; NSW 8084; NSW 8058; NSW 8093; NSW 8096; NSW 8334; NSW 46177; NSW 51372; NSW 59922; NSW 60020; NSW 60049; NSW 60056; NSW 63795; NSW 82336; NSW 84241; NSW 95444; NSW 95801; NSW 95835; NSW 95837; NSW 97837; NSW 102371.

* *A. deanei* subsp. *paucijuga*

Boorman, J.L. s.n., Feb. 1899 (NSW); Constable, E.F. 4528 (NSW); Fox, M. 8208416 (NSW); Hargraves 8357 (NSW); Lassak, E. 79-D17 (*NSW); Milthorpe, P.L. 760 (NSW); NSW 8602; NSW 33639; NSW 33640; *NSW 59126; NSW 59899; *NSW 59900; NSW 61042; *NSW 63255; NSW 63788; NSW 63857; NSW 63858; NSW 68290; NSW 84632; NSW 84639; NSW 84644; NSW 101229; NSW 101230; NSW 104376; NSW 107083; Cocoparra Nat. Park (NSW).

A. debilis

Boorman, J.L. s.n., July 1913 (NSW); Coveny, R. 6794a (NSW); NSW 65881; NSW 151642.

Appendix I (continued). Herbarium specimens of some Australian species of *Acacia* and *Papilionoideae* tested for cyanogenic glycosides

A. decurrens

Benson, D. 304 (NSW); Benson, D. 309 (NSW); Benson, D. s.n., 12 May 1977 (NSW); CANB 019183 (NSW); Coveny, R. 4870 (NSW); Coveny, R. 8631 (NSW); Hamilton, B.A. 9 (NSW); Henry, s.n. 1941 (NSW); Lithgow, G.M. 181 (NSW); McKee, H.S. 11571 (NSW); NSW 8705; NSW 8715; NSW 41754; NSW 46174; NSW 47423; NSW 48529; NSW 48595; NSW 53042; NSW 63830; NSW 84521; NSW 95598; NSW 97454; NSW 108595.

A. elata

Austen, W.A. s.n., Feb. 1916 (NSW); Coveny, R. s.n., 13 May 1967 (NSW); Debenham, C. s.n., Nov. 1967 (NSW); NSW 48985; NSW 52964; NSW 60580; NSW 60587; NSW 60591; NSW 76551; NSW 77271; NSW 105047; NSW 124990.

A. filicifolia

Betteridge, C. 96 (NSW); Blaxell, D. & Coveny, R. 571 (NSW); Hall, N. H78/4 (NSW); Cross, R.D. s.n., 13 Apr. 1980 (NSW); Pickard, J. 173 (NSW); Telford, I.R. 8855 (NSW); Turner, J.C. 16 (NSW); NSW 6502; NSW 7720; NSW 7732; NSW 7735; NSW 47232; NSW 47369; NSW 47383; NSW 47404; NSW 47405; NSW 47507; NSW 48122; NSW 48448; NSW 49002; NSW 49003; NSW 52456; NSW 52527; NSW 52694; NSW 56905; NSW 61941; NSW 65677; NSW 70833; NSW 83734; NSW 99692; NSW 101282; NSW 119253; Wollomombi (Gorge?) (NSW).

A. fulva

Coveny, R. s.n., 17 Apr. 1965 (NSW); Coveny, R. s.n., 7 Sept. 1967 (NSW); Hibble, A. s.n., Aug. 1980 (NSW); Pickard, J. 60 (NSW); NSW 63249; NSW 89947.

A. glaucocarpa

Johnson, L. and Blaxell, D. 968 (NSW); BRI 22628 (NSW); NSW 60534; NSW 77719; NSW 102373; NSW 102562; NSW 106883; NSW 107109.

A. irrorata

Armitage, I.B. 1368 (PERTH); Constable, E.F. 6580 (PERTH); Constable, E.F. 6631 (PERTH); Constable, E.F. 6912 (PERTH); Constable, E.F. 56657 (PERTH); Cumming, R. 3143 (PERTH); Evans, M. 2776 (PERTH); Hall, N. H83/37 (PERTH); Messmer, P.R. 65990 (PERTH); Tindale, M.D. 64667 (PERTH).

A. irrorata subsp. *irrorata*

Briggs, B. s.n., Aug. 1964 (NSW); Constable, E.F. 2080 (PERTH); Coveny, R. 92 (NSW); Coveny, R. s.n., 26 Mar. 1967 (NSW); Debenham, C. (NSW 150540); Evans, M. 2776 (NSW); Evans, O.D. s.n., 6 Dec. 1961 (NSW); Filson, R. 667 (NSW); Floyd, A.G. 911 (NSW); Hall, N. H83/38 (PERTH); Salasoo, H. 4657 (NSW); Salasoo, H. s.n., 7 Jan. 1971 (NSW); Shambler, F.B. Jan 1932 (NSW); Tindale, M.D. 29 June 1964 (NSW); NSW 7775; NSW 7776; NSW 7778; NSW 7790; NSW 8306; NSW 25075; NSW 34452; NSW 34453; NSW 42738; NSW 47028; NSW 47264; NSW 47461; NSW 48231; NSW 48234; NSW 48236; NSW 52691; NSW 52890; NSW 52917; NSW 52919; NSW 52921; NSW 52930; NSW 53222; NSW 53223; NSW 53226; NSW 56657; NSW 61022; NSW 63188; NSW 63200; NSW 64667; NSW 82127; NSW 82128; NSW 83999; NSW 84003; NSW 92950; NSW 106856; NSW 148664.

A. irrorata subsp. *velutinella*

Tindale, M.D. 52911 (PERTH).

A. jonesii

Coveny, R. s.n., 17 Sept. 1967 (NSW); Fackender s.n., 18 Aug. 1968 (NSW); Mills, K. s.n., 13 June 1982 (NSW); Rumsey, H. s.n., Sept. 1898; NSW 49382; NSW 50176; NSW 77293.

A. latisejala

Coveny, R. 2268 (NSW); Coveny, R. 5724 (NSW); NSW 63190.

A. leucoclada

Constable, E.F. s.n., 17 Jan. 1958 (NSW); Hamilton, B.A. 14 (NSW); Newman, I.V. s.n., 26 May 1967 (NSW); Rupp, H.M.R. s.n., Aug. 1913 (NSW); Willis, J.H. s.n., 9 Oct. 1969 (NSW); Wilson, K. 2517 (NSW); Withers, G.A. s.n., 31 Oct. 1951 (NSW); NSW 7814; NSW 7819; NSW 25552; NSW 44264; NSW 47332; NSW 63804; NSW 78857; NSW 78883; NSW 102367.

A. leucoclada subsp. *A*

Williams, J.B. s.n., 21 July 1980 (NSW); NSW 46169; NSW 84892.

A. loroloba

Pedley, L., Lebler, B. & Tindale, M. s.n. (NSW 102609); Webb, L.J. and Tracey, J.G. 3386 (NSW); NSW 52692; NSW 102610; NSW 112750.

Appendix 1 (continued). Herbarium specimens of some Australian species of Acacia and Papilionoideae tested for cyanogenic glycosides

A. mearnsii

Betteridge, C.R. s.n. 16/6/74; Cambage, M.F. s.n., Nov. 1928 (NSW); CANB 035275 (NSW); Evans, M. 2709 (NSW); Giles, W.E. s.n., 19 Nov. 1961 (NSW); Hall, N. H78/98 (NSW); Jacobs, S. 2871 (NSW); Lee, A. 61 (NSW); Moore, C.W.E. 4662 (NSW); Olsen, L. s.n., 20 Dec. 1963 (NSW); Tindale, M. s.n. (NSW 52189); NSW 7798; NSW 8660; NSW 8686; NSW 52190; NSW 52614; NSW 53154; NSW 53780; NSW 53867; NSW 59956; NSW 59972; NSW 72133; NSW 72136; NSW 82133; NSW 90374; NSW 97457; NSW 98820; NSW 99354.

A. megacephala

Ashby, A.M. 4531 (PERTH); Coveny, R. 3000 (PERTH); George, A.S. 9220 (PERTH); Green, J.W. 474 (PERTH); Maslin, B.R. F12 (PERTH); Maslin, B.R. 74 (PERTH); Royce, R.D. 8030 (PERTH); Smith, E.B.J. s.n. (PERTH 00173371).

A. mitchellii

NSW 2830; NSW 83954; NSW 104270.

A. mollifolia

Ingram, C.R. s.n., 26 May 1963 (NSW); Johnson, M. s.n., Feb. 1973 (NSW); Weare, P.L. s.n., 27 May 1983 (NSW); NSW 8143; NSW 63836; NSW 64575; NSW 64577.

A. muelleriana

NSW 6504; NSW 41959; NSW 60592; NSW 60600; NSW 98787; NSW 104275.

A. nanodealbata

NSW 78966; NSW 95285; NSW 95286.

A. nanodealbata subsp. *A*

Corrick, M.G. 6540 (NSW); NSW 63177; NSW 90482.

A. olsenii

Boland, D.J. J17 (NSW); Coveny, R. 6357 et al. (NSW); Olsen, I. 3091 (NSW).

A. oshanesii

Ellison, D. s.n., 18 Sept. 1979 (NSW); Wilson, K.L. 3972 (NSW); NSW 90744; NSW 124451; NSW 132997.

* + *A. parramattensis*

Armitage, I. 1019 (NSW); Constable, E.F. 4129 (PERTH); Constable, E.F. 42284 (*PERTH); Constable, E.F. 52963 (PERTH); Constable, E.F. 57926 (PERTH); Constable, E.F. 58997 (PERTH); Coveny, R. 106 (NSW); Coveny, R. 10401 (NSW); Coveny, R. 10499 (*NSW); Coveny, R. 11440 (NSW); Croll, R.D. s.n., 13 Apr. 1980 (NSW); D'Amey, E. s.n. (NSW); Gray, M. 5968 (PERTH); Hall, N. H78/101 (PERTH); Hall, N. H79/104 (PERTH); Hall, N. H83/1 (PERTH); Hall, N. H83/3 (PERTH); Hall, N. H83/5 (PERTH); Hart, D. s.n. (PERTH 00463396); Pickard, J. 890 (NSW); Pickard, J. 999 (NSW); Pickard, J. & S. JP182 (NSW); Tindale, M.D. 716 (NSW); Tindale, M.D. 53044 (PERTH); Tindale, M.D. and Constable, E.F. 51313 (PERTH); NSW 8616; NSW 8620; NSW 8621; NSW 8629; NSW 8630; NSW 8678; NSW 8683; NSW 8689; NSW 27512; NSW 34421; NSW 34422; NSW 41755; NSW 46173; NSW 47262; NSW 47431; NSW 47464; NSW 47480; NSW 47705; NSW 48986; NSW 52963; NSW 52965; NSW 53039; NSW 53747; NSW 58995; NSW 59509; NSW 59513; NSW 59514; NSW 59515; NSW 59524; NSW 63803; NSW 84592; NSW 86593; +NSW 100269; NSW 101237; NSW 106774.

A. parvipinnula

CANB 030791 (NSW); Coveny, R. 4856 (NSW); Debenham, C. s.n., Nov. 1963 (NSW); Johnson, L.A.S. 8522 (NSW); Olsen, I. 2426 (NSW); Paolini, L.M. s.n., Nov. 1971 (NSW); Salasoo, H. s.n., 1 Dec. 1963 (NSW); NSW 42380; NSW 44439; NSW 46170; NSW 47476; NSW 47479; NSW 48872; NSW 48873; NSW 52194; NSW 52274; NSW 52526; NSW 72145; NSW 78902; NSW 89956; NSW 103755; NSW 124988; NSW 133003.

* *A. polybotrya*

Armitage, I.B. 1639 (PERTH); Coveny, R. 2337 (PERTH); Coveny, R. 2362 (NSW, PERTH); Kennedy, B. s.n., 31 Aug. 1976 (NSW); Laine, T. s.n., Aug. 1977 (NSW); Medhurst, G. 17 (NSW); Newman, I.V. 421 (NSW); Newman, I.V. 429 (NSW); Newman, I.V. 438 (NSW); Newman, I.V. 462 (NSW); Scott, A.W. s.n., 1 July 1970 (NSW); NSW 60512; NSW 60516; *NSW 60520; NSW 60521; NSW 97830; NSW 101366; NSW 107047; NSW 107048.

A. pruinosa

Boorman, J.L. s.n., Dec. 1914 (NSW); Coveny, R. 11731 (NSW); Coveny, R. 11735 (NSW); NSW 65894; NSW 104262; NSW 106943.

Appendix 1 (continued). Herbarium specimens of some Australian species of *Acacia* and *Papilionoideae* tested for cyanogenic glycosides

A. pubescens

Baker, R.T. s.n., Sept. 1905 (NSW); Baker, R.T. s.n., Sept. 1909 (NSW); Coveny, R. 10467 (NSW); Fraser, L. s.n., Sept. 1933 (NSW); Johnson, L.A.S. J7725 (NSW); NSW 8120; NSW 13239; NSW 53064; NSW 60631; NSW 85023.

* *A. pulchella* var. *glaberrima* (typical variant)

Ashby, A.M. 3661 (PERTH); Blackall, W.E. s.n. (*PERTH 00183423); Cranfield, R.J. 1602 (PERTH); Cranfield, R.J. R376 (PERTH); Cumming, R.J. 859 (*PERTH); Curry, S. 34 (PERTH); Edmiston, R. s.n. (*PERTH 00184373); Gardner, C.A. s.n. (PERTH 00184888); Gardner, C.A. s.n. (PERTH 00185388); George, A.S. 142 (*PERTH); George, A.S. 5934 (PERTH); Hutchison, D.E. s.n. (PERTH 00186309); James, A.M. 8 (PERTH); James, A.M. 209 (*PERTH); James, A.M. 209a (PERTH); Kagi, R.I. 7701 (PERTH); Lange, R.T. 64 (*PERTH); Marchant, N.G. 72/085 (PERTH); Maslin, B.R. 133 (PERTH); Maslin, B.R. 450 (*PERTH); Maslin, B.R. 465 (PERTH); Maslin, B.R. 609 (PERTH); Maslin, B.R. 613 (PERTH); Maslin, B.R. 616 (PERTH); Maslin, B.R. 616b (PERTH); Maslin, B.R. 664 (PERTH); Maslin, B.R. 666 (PERTH); Maslin, B.R. 1617 (PERTH); Maslin, B.R. 1617a (*PERTH); Maslin, B.R. 1671 (PERTH); Maslin, B.R. 2830 (PERTH); Maslin, B.R. 2832 (PERTH); Maslin, B.R. 2847 (PERTH); Maslin, B.R. 2984 (PERTH); Maslin, B.R. 3494 (PERTH); Maslin, B.R. 4186 (*PERTH); Maslin, B.R. s.n. (*PERTH 00456004); Paust, S. 69 (PERTH); Paust, S. 105 (PERTH); Paust, S. 706 (PERTH); Recharging, K.H. 58891 (PERTH); Royce, R.D. 4623 (PERTH); Saffrey, R.A. 1567 (PERTH); Schock, F.M.C. s.n. (PERTH 00455997); Scrymgeour, E.M. 2202b (PERTH); Seabrook, J. 71 (PERTH); Simmons, M.H. 1346 (PERTH); Smith, F.G. 1818 (PERTH); Stewart, W.S. Aust.-44 (PERTH); Story, R. 8244 (PERTH); Strid, A. 20284 (*PERTH); Talbot, L. F. (*PERTH 0182982); Talbot, L. G. (*PERTH 00182990); Tindale, M.D. 187 (PERTH); Tindale, M.D. 1279 (PERTH); Tindale, M.D. 143 & Maslin, B.R. (PERTH); Tindale, M.D. 363 & Maslin, B.R. (PERTH); Went, F.W. 43 (PERTH).

* *A. pulchella* ? var. *glaberrima* (Fitzgerald River variant)

Newbey, K. 5022 (*PERTH); Saffrey, R.A. 1459 (*PERTH).

* *A. pulchella* var. *goodbyi*

Cumming, R.J. 94 (PERTH); Dobson, H.E.M. 79024 (*PERTH); Edinger, D.J. 222 (*PERTH); George, A.S. 9861 (*PERTH); Harvey, W.H. s.n. (PERTH 00176214); Keighery, G.J. 2603 (PERTH); Keighery, G.J. 3435 (*PERTH); Keighery, G.J. 4008 (*PERTH); Maslin, B.R. 2854 (*PERTH); Maslin, B.R. 2855 (*PERTH); Maslin, B.R. 2966 (*PERTH); Maslin, B.R. 3520 (*PERTH); Maslin, B.R. 3521 (*PERTH); Maslin, B.R. 3771 (*PERTH); Maslin, B.R. 4390 (*PERTH); Royce, R.D. 3596 (*PERTH); Swainson, E. s.n. (*PERTH 00455423); Tindale, M.D. 304 & Maslin, B.R. (*PERTH); Tindale, M.D. 304a & Maslin, B.R. (*PERTH); Tindale, M.D. 307 & Maslin, B.R. (*PERTH).

* *A. pulchella* var. *pulchella*

Aplin, T.E.H. 2 (PERTH); Armstrong, P. 60 (PERTH); Ashby, A.M. 3663 (PERTH); Ashby, A.M. 4327 (PERTH); Ashby, A.M. 4374 (per H.E. Daniels) (PERTH); Bennett, E.M. 1081 (PERTH); Canning, E.M. WA/68 6624 (PERTH); Cashmore, A.B. 87 (PERTH); Chapman, C. s.n. (PERTH 00180637); Corrick, M.G. 8934 (PERTH); Demarz, H. 9845 (PERTH); Elliott, A. NSW 132952 (PERTH); Fairall, A.R. 573 (PERTH); George, A.S. 3046 (PERTH); George, A.S. 10125 (PERTH); Green, J.W. 1091 (PERTH); Green, J.W. 1722 (PERTH); Gregory s.n. (PERTH 00178624); Hartley, T.G. 13984 (PERTH); Jackson, E.N.S. 3223 (PERTH); Jackson, E.N.S. 3233 (PERTH); Jackson, S.W. s.n. (PERTH 00181102); Keighery, G.J. 5269 (PERTH); Keighery, G.J. 5581 (*PERTH); Keighery, G.J. 6766 (PERTH); Kenneally, K.F. 71/281B (PERTH); Kniep, N. (W.A. Naturalists' Club) s.n. (PERTH 00180122); Maiden, J.H. NSW 132953 (PERTH); Maiden, J.H. NSW 132954 (PERTH); Maslin, B.R. 7 (PERTH); Maslin, B.R. 436 (PERTH); Maslin, B.R. 451 (PERTH); Maslin, B.R. 468 (PERTH); Maslin, B.R. 483 (PERTH); Maslin, B.R. 622 (PERTH); Maslin, B.R. 623 (PERTH); Maslin, B.R. 753 (PERTH); Maslin, B.R. 1141 (PERTH); Maslin, B.R. 2807 (PERTH); Maslin, B.R. 2823 (PERTH); Maslin, B.R. 2829 (PERTH); Maslin, B.R. 2837 (PERTH); Maslin, B.R. 2845 (*PERTH); Maslin, B.R. 2869 (*PERTH); Maslin, B.R. 2874 (PERTH); Maslin, B.R. 2912 (PERTH); Maslin, B.R. 2965 (PERTH); Maslin, B.R. 3236 (PERTH); Maslin, B.R. 3249 (PERTH); Maslin, B.R. 3522 (PERTH); Maslin, B.R. 3731 (PERTH); Maslin, B.R. 3996 (*PERTH); Maslin, B.R. 4026 (PERTH); Maslin, B.R. 4369 (PERTH); Maslin, B.R. s.n. (PERTH 00178152); Maslin, B.R. s.n. (PERTH 00180564); Nelson, E.C. ANU 17212 (PERTH); Paust, S. 57 (PERTH); Recharging, K.H. 58876 (PERTH); Saffrey, R.A. 61 (PERTH); Schock, F.M.C. 66 (PERTH); Smith, F.G. 1722 (PERTH); Stewart, W.S. 317 (PERTH); Talbot, L. H. (PERTH 00181021); Tindale, M.D. 3914 (PERTH); Tindale, M.D. 132 & Maslin, B.R. (PERTH); Tindale, M.D. 133 & Maslin, B.R. (PERTH); Went, F.W. 154 (PERTH); Whibley, D.J.E. 4983 (PERTH); Wilson, E.H. & Halcut, D.A. s.n. (PERTH 00177709); Wilson, E.H. & Halcut, D.A. s.n. (PERTH 00455989); Wilson, P.G. 10236 (PERTH).

* *A. pulchella* var. ?

Burgman, M.A. 1266 & McNee, S. (*PERTH); Burgman, M.A. 1831 & McNee, S. (*PERTH); Keighery, G.J. 6699 (*PERTH); Serventy, D. s.n. (*PERTH 00175307).

A. pulchella var. ? *pulchella* x *reflexa*

Chapman, C. s.n. (PERTH 00175730); Maslin, B.R. 670 (PERTH); Smith, F.G. 1715 (PERTH).

Appendix 1 (continued). Herbarium specimens of some Australian species of *Acacia* and *Papilionoideae* tested for cyanogenic glycosides

A. pulchella var. *reflexa*

Blackall, W.E. s.n. (PERTH 00604623); Chapman, C. s.n. (PERTH 00174394); Chapman, C. s.n. (PERTH 00174866); Cumming, R.J. 872 (PERTH); Cumming, R.J. 877 (PERTH); Cumming, R.J. 882 (PERTH); Hopper, S.D. s.n. (PERTH 00174378); Gardner, C.A. s.n. (PERTH 00175269); Maslin, B.R. 2798 (PERTH); Maslin, B.R. 2799 (PERTH); Maslin, B.R. 3215 (PERTH); Maslin, B.R. 3216 (PERTH); Maslin, B.R. 3216A (PERTH); Maslin, B.R. 3216B (PERTH); Maslin, B.R. 3984 (PERTH); Smith, F.G. 1823 (PERTH); Souster, J. 445 (PERTH).

A. pulchella var. *subsessilis*

Allan, K.M. 878 (PERTH); Aplin, T.E.H., Lethbridge, I. & Coveny, R. 3194 (PERTH); Bansfield, L. 4 (PERTH); Maslin, B.R. 157 (PERTH); Maslin, B.R. 660 (PERTH); Maslin, B.R. 756 (PERTH); Maslin, B.R. 3253 (PERTH); Maslin, B.R. 3264 (PERTH); Maslin, B.R. 3469 (PERTH); Maslin, B.R. s.n. (PERTH 00177164); Newbey, K. 3736 (PERTH); Newbey, K. 5031 (PERTH); Newbey, K. 5532 (PERTH); Newbey, K. 9485-1 (PERTH); Newbey, K. 9498-1 (PERTH); Parkin, E. s.n. (PERTH 00177199); Royce, R.D. 3685 (PERTH); Tindale, M.D. 116 & Bennett, E.M. (PERTH).

A. schinoides

Beenher, J. s.n. (NSW); Blakely, W.F. (NSW 47377); Constable, E.F. 4285 (PERTH); Constable, E.F. 5972 (PERTH); Constable, E.F. s.n., 23 Aug. 1949 (NSW); Constable, E.F. s.n., Nov. 1965 (NSW); Coveny, R. 257 (NSW); Coveny, R. 5863 (NSW); Coveny, R. s.n., Nov. 1965 (NSW); Coveny, R. s.n., 12 Mar. 1966 (NSW); Hind, P. 901 (NSW); Irby, L.G. s.n., Dec. 1911 (NSW); Laseron, C.F. s.n., Feb. 1924 (NSW); Lawler, L.J. s.n., 3 Jan. 1979 (NSW); per Ryde School of Hort. s.n., Oct. 1977 (NSW); Power, G.J. s.n., 11 Mar. 1975 (NSW); Story, R. 6709 (NSW); Welch, M.B. s.n., Feb. 1925 (NSW); NSW 47373; NSW 47375; NSW 47376; NSW 48123; NSW 60037; NSW 60038; NSW 60046; NSW 65349; NSW 78937; NSW 89952; NSW 91605; NSW 97781.

A. silvestris

Constable, E.F. 5454 (NSW); Wimbush, D.J. 33 - Sept. 1971 (NSW); NSW 21676; NSW 26674; NSW 26676; NSW 52197; NSW 53778; NSW 72141; NSW 82509.

A. spectabilis

Burgess, C. s.n., 10 Oct. 1975 (NSW); Coveny, R. 9549 (NSW); Cunningham, G.M. & Milthorpe, P.L. 2995 (NSW); Debenham, C. s.n., Sept. 1963 (NSW); Newman, I.V. 422 (NSW); Newman, I.V. 434 (NSW); Newman, I.V. 439 (NSW); Newman, I.V. 471 (NSW); NSW 60560; NSW 60561; NSW 65823; NSW 101291; NSW 101332; NSW 101367; NSW 132548.

A. stoyi

Armitage, I. 1400 (NSW); Gittins, C.H. s.n., Aug. 1964 (NSW); Henderson, R.J. & Sharpe, P. s.n., 20 Apr. 1971 (NSW); Johnson, L.A.S. s.n., 29 Aug. 1968 (NSW).

A. terminalis

Blaxell, D.F. 1328a (NSW); Moxon, K. 76/5 (NSW); NSW 48881; NSW 48883; NSW 48884; NSW 60156; NSW 82135.

A. terminalis subsp. A

Althofer, G. s.n., Sept. 1972 (NSW); Blaxell, D.F. 1755 (NSW); CANB 014482 (NSW); Cedarns, L.G. 793 (NSW); Constable, E.F. 7427 (NSW); Coveny, R. 6222 (NSW); Pickard, J. 266 (NSW); Story, R. 7868 (NSW); NSW 11510; NSW 42382; NSW 50511; NSW 53879; NSW 56940; NSW 60175; NSW 60179; NSW 77712.

A. terminalis subsp. B

Filson, R. 3900 (NSW); NSW 48882; NSW 51290; NSW 57880; NSW 60074; NSW 60078; NSW 60084; NSW 61047; NSW 77699; NSW 82296; NSW 89395.

A. terminalis subsp. C

CANB 046029 (NSW); Coveny, R. 10202 (NSW); Fox, M. 7907028 (NSW); NSW 55281; NSW 56753; NSW 64670.

A. terminalis subsp. D

Althofer s.n., Sept. 1972 (NSW); Johnson, L.A.S. s.n., 3 Oct. 1948 (NSW); Newman, I.V. 414 (NSW); NSW 59107; NSW 60123; NSW 66328; NSW 77727.

A. terminalis subsp. E

Coveny, R. 4108 (NSW).

A. terminalis subsp. F

Coveny, R. 4977 (NSW); Coveny, R. 5000 (NSW); Newman, I.V. 563 (NSW); NSW 55280; NSW 60161; NSW 60169.

Appendix 1 (continued). Herbarium specimens of some Australian species of Acacia and Papilionoideae tested for cyanogenic glycosides*A. trachyphloia*

Baker, R.T. s.n., May 1910 (NSW); Constable, E.F. s.n. (NSW 55299); NSW 8363; NSW 42199; NSW 43088; NSW 47363; NSW 53897; NSW 82858; NSW 93533; NSW 97078; NSW 103900; NSW 107058.

A. sp. nov. 1 (section Botrycephalae)

Dawson, C. s.n. (NSW 148802); Dawson, C. s.n., 7 Jan. 1976 (NSW); Floyd, A.G. 1627 (NSW); Floyd, A.G. 1644; Floyd, A.G. s.n. (NSW 108451); Floyd, A.G. s.n., 18 Feb. 1976 (NSW); Morris, G. s.n., 1 May 1981 (NSW).

A. sp. nov. 2 (section Botrycephalae)

Blagg, J. s.n., June 1982 (NSW); Boland, D.J. 1888 (NSW); Cole, E.G. 1474 (NSW); Cope, P. s.n., 1 July 1982 (NSW); Gunn, B.V. 621 (NSW); Thomson, L. LXT118 (NSW).

A. sp. nov. 3 (section Botrycephalae)

Hitchcock, P. D12 (NSW); McRae, R. s.n., 30 Aug. 1980 (NSW); Tame, T.M. 487 (NSW); Turner, T. s.n., July 1984 (NSW).

Aenictophyton reconditum

Davis, G. 120 (PERTH); George, A.S. 14787 (PERTH).

Austrodolichos errabundus

Beard, J.S. 8468 (PERTH); Keighery, G.J. 4765 (PERTH); Kenneally, K.F. 6598 (PERTH); Kenneally, K.F. 7053 (PERTH); Kenneally, K.F. 7979 (PERTH); Kenneally, K.F. 8051 (PERTH).

Bassiaea aquifolium

Hamilton, R. & M. 33 (PERTH); Royce, R.D. 5114 (PERTH); Strid, A. 21516 (PERTH).

B. bossiaeooides

Evans, M. 11 (PERTH); Kenneally, K.F. s.n. (PERTH 00456268); Wilson, P.G. 11441 (PERTH).

B. concinna

Bennett, E.M. 633 (PERTH); Corrick, M.G. 8265 (PERTH).

B. dentata

George, A.S. 7458 (PERTH); Keighery, G.J. 855 (PERTH); Wittwer, E. W1195 (PERTH).

B. disticha

Ashby, A.M. 2362 (PERTH); Gardner, C.A. 5613 (PERTH); Lullfitz, F. 2060 (PERTH).

B. divaricata

Newbey, K. 404 (PERTH).

B. eriocarpa

Aplin, T.E.H. 6550 (PERTH); Beard, J.S. 7874 (PERTH); Burbidge, N.T. 2521 (PERTH); Griffin, E.A. 931 (PERTH); Lange, R.T. 36 (PERTH).

B. laidlawiana

Hamilton, R. & M. 37a (PERTH); Norris, N.F. 990 (PERTH); Sands, V.E. 638.12.6 (PERTH); Willis, J.H. s.n. (PERTH 00456276).

B. linophylla

Fairall, A.R. 878 (PERTH); Haegi, L. 2504 and Short, P.S. (PERTH); Koch, J. CJK2 (PERTH); Newbey, K. 850 (PERTH); Newbey, K. 1332 (PERTH).

B. ornata

Aplin, T.E.H. 204 (PERTH); Nelson, E.C. ANU17185 (PERTH); Strid, A. 20382 (PERTH); Strid, A. 21506 (PERTH); Whibley, D.J.E. 5062 (PERTH).

B. peduncularis

Goss, O.M. s.n. (PERTH 00456284); Koch, J.M. N24 (PERTH); Wilson, P. 3381 (PERTH).

B. preissii

Blackall, W.E. and Gardner, C.A. 2166 (PERTH); Newbey, K. 273 (PERTH); Turner, B.L. 5537 (PERTH).

Appendix 1 (continued). Herbarium specimens of some Australian species of *Acacia* and *Papilionoideae* tested for cyanogenic glycosides

B. pulchella

Crisp, M.D. 5387 (PERTH); Johnson, D.P. LL001 (PERTH); Lange, R.T. 267 (PERTH); Sands, V.E. 637.4.17 (PERTH); Seabrook, J. 147 (PERTH).

B. spinescens

Burns, A.C. 4 (PERTH); Keighery, G.J. 5375 (PERTH); Lullfitz, F. s.n. (PERTH 00456292).

B. spinosa

Beard, J.S. 7897 (PERTH); Cranfield, R.J. 3063 (PERTH); Cranfield, R.J. 4004 (PERTH).

B. strigilosa

Gardner, C.A. 13751 (PERTH).

B. webbia

Jackson, S.W. s.n. (PERTH 00456306); Lange, R.T. 249 (PERTH).

* *Canavalia papuana*

George, A.S. 12277 (PERTH); Hnatiuk, R.J. MP78 (PERTH); Kenneally, K.F. 6387 (PERTH); Kenneally, K.F. 8092 (*PERTH); Wilson, P.G. s.n. (PERTH 00456365).

C. rosea

Beard, J.S. 8276 (PERTH); Gardner, C.A. 10383 (PERTH); Kenneally, K.F. 6042 (PERTH); Kenneally, K.F. 9217 (PERTH); Leutert, W. 6 (PERTH).

* *Erythrina vespertilio*

Batini, F. s.n. (PERTH 00456330); Gardner, C.A. 1511 (PERTH); George, A.S. 1119 (PERTH); Keighery, G.J. 715 (*PERTH); Newbey, K. 10444 (*PERTH).

Galactia tenuifolia

Hutchinson, J.N. 6 (PERTH); Kenneally, K.F. 7980 (PERTH); Langfield, E. 381 (PERTH); Lewis, J. 45 (PERTH); Maslin, B.R. 5138 (PERTH).

Glycine canescens

Aplin, T.E.H. 3228 (PERTH); Brockway, G.E. s.n. (PERTH 00456381); Gardner, C.A. s.n. (PERTH 00456403); Green, J.W. 1412 (PERTH); Humphries, A.W. s.n. (PERTH 00456373).

G. clandestina

Blockley, J.V. 676 (PERTH); Newbey, K. 6902 (PERTH); Royce, R.D. 3502 (PERTH); Speck, N.H. 583 (PERTH); Witwer W1737 (PERTH).

G. tabacina

Aplin, T.E.H. 2510 (PERTH); Burns, A.C. 34 (PERTH); Demarz, H. 3866 (PERTH); Glennon, P. 93 (PERTH); Mitchell, A.A. 1196 (PERTH).

G. tomentella

George, A.S. 939 (PERTH); Saxon, E.C. s.n. (PERTH 00456411).

* *Goodia lotifolia*

Allan, K.M. 362 (*PERTH); Butler, H. s.n. (PERTH 00456047); Donner, N.N. 2914 (PERTH); Elliott, H.G. s.n. (PERTH 00456020); Gardner, C.A. & Blackall, W.E. s.n. (PERTH 00456071); Keighery, G.J. 5478 (*PERTH); Maiden, J.H. s.n. (*PERTH 00456063); Mullan, E.J. s.n. (PERTH 00456039); Newbey, K. 334 (PERTH); Newbey, K. 7618 (*PERTH); Paust, S. 786 (PERTH); Royce, R.D. 9142 (*PERTH); Steedman, H. s.n. (PERTH 00456055); Steedman, H. s.n. (PERTH 00456098).

Hardenbergia comptoniana

Foreman, D. 378a (PERTH); James, A.M. 220 (PERTH); Keighery, G.J. 3364 (PERTH); Parker, H.J. s.n. (PERTH 00456500); Went, F.W. 48 (PERTH).

Hovea acanthoclada

Gardner, C.A. 9226 (PERTH); Royce, R.D. 3651 (PERTH).

H. chorizemifolia

Hamilton, R. & M. 1a (PERTH).

Appendix 1 (continued). Herbarium specimens of some Australian species of *Acacia* and *Papilionoideae* tested for cyanogenic glycosides

H. elliptica

Crisp, M.D. 6102, Taylor, J. and Jackson, R. (PERTH); Jackson, S.W. s.n. (PERTH 00456233).

H. pungens

Coveny, R. 7994 and Maslin, B.R. (PERTH); Helms, R. s.n. (PERTH 00456241); Smith, B.H. 243 (PERTH).

H. stricta

Blackall, W.E. 3964 (PERTH); Gardner, C.A. 9028 (PERTH); Hartley, T.G. 13973 (PERTH).

H. trisperma

Gardner, C.A. 6485 (PERTH); Hamilton, R. & M. 5 (PERTH); Saffrey, R.A. 134 (PERTH).

Kennedia beckxiana

Aplin, T.E.H. 2614 (PERTH); Eichler, H.J. 20069 (PERTH); George, A.S. 2177 (PERTH); Royce, R.D. 10039 (PERTH); Strid, A. 21251 (PERTH).

K. carinata

Aplin, T.E.H. 1369 (PERTH); Gardner, C.A. 946 (PERTH); Garraty, R. 3 (PERTH); George, A.S. 15775 (PERTH); Whibley, D.J.E. 5073 (PERTH).

K. coccinea

Demarz, H. 555 (PERTH); Demarz, H. D6677 (PERTH); Green, J.W. 523 (PERTH); Lange, R.T. 185 (PERTH); Royce, R.D. 8789 (PERTH).

K. eximia

Burgman, M.A. and McNee, S. MAB2038 (PERTH); Foreman, D. 355 (PERTH); Gardner, C.A. and Blackall, W.E. s.n. (PERTH 00456438); Nelson, E.C. ANU16478 (PERTH); Sands, V.E. 638-16-1 (PERTH).

K. glabrata

Beard, J.S. 5778 (PERTH); Coughran, R.A. s.n. (PERTH 00456446); George, A.S. 3214 (PERTH); George, A.S. 14379 (PERTH).

K. macrophylla

Camilleri, M.G. s.n. (PERTH 00456462); Gardner, C.A. s.n. (PERTH 00456470); Garraty, R. 23 (PERTH); Watson s.n. (PERTH 00456454).

K. microphylla

Gardner, C.A. 6519 (PERTH); Halford, D. 801040 (PERTH); Newbey, K. 2617 (PERTH); Newbey, K. 5115 (PERTH); Mam, P. s.n. (PERTH 00456489).

K. nigricans

Gardner, C.A. 6603 (PERTH); Halliday, T.A. 304 (PERTH); Royce, R.D. 3660 (PERTH); Story, R. 8271 (PERTH); Strid, A. 20937 (PERTH).

K. prorepens

Beard, J.S. 4833 (PERTH); Boswell, P. R68 (PERTH); Chinmook, R.J. 887 (PERTH); Eichler, H.J. 20047 (PERTH); Weber, J.Z. 4820 (PERTH).

K. prostrata

Anway, J.C. 211 (PERTH); Coleby-Williams, J. 408 (PERTH); Cranfield, R.J. R68 (PERTH); Royce, R.D. 3758 (PERTH); Saffrey, R.A. 117 (PERTH).

K. stirlingii

Cranfield, R.J. 1328/80 (PERTH); Cranfield, R.J. 4150 (PERTH); Hamilton, R. & M. 10 (PERTH); Lange, R.T. 203 (PERTH); McCallum, H.V. s.n. (PERTH 00456497).

* *Lotus australis*

Aplin, T.E.H. 3338 (*PERTH); Aplin, T.E.H. 3418 (PERTH); Ashby, A.M. 5232 (*PERTH); Beard, J.S. 2944 (PERTH); Beaglehole, A.C. ACB11121 (PERTH); Bellairs, D. & B. 1408 (*PERTH); Berston, J.D. 5 (PERTH); Buckley, R. 6881 (*PERTH); Burns, A.C. 40 (PERTH); Crawford, A. s.n. (PERTH 00456101); Demarz, H. D7714 (*PERTH); Fitzgerald,

Appendix 1 (continued). Herbarium specimens of some Australian species of Acacia and Papilionoideae tested for cyanogenic glycosides

W.V. 819 (*PERTH); Gardner, C.A. 12663 (*PERTH); George, A.S. 1405 (PERTH); Grasby, J.C. 510 (PERTH); Humphries, A.W. s.n. (*PERTH 00456128); Lynch, C.M. 153 (PERTH); McGuire 26 (PERTH); Mitchell, A.A. 588 (*PERTH); Royce, R.D. 8008 (PERTH); Speck, N.H. 682 (*PERTH); Walker, K. KW205 (*PERTH).

* *L. cruentus*

Aplin, T.E.H. 2511 (PERTH); Beard, J.S. 3476 (PERTH); Beard, J.S. 7074 (PERTH); Beaglehole, A.C. ACB11683 (PERTH); Beaglehole, A.C. ACB11711 (PERTH); Blair, R. s.r. (*PERTH 00456152); Brooker, M.G. 3643 (*PERTH); Burbidge, N.T. 1586 (*PERTH); Davis, G. 81 (PERTH); Davis, G. 113 (*PERTH); Demarz, H. 3844 (PERTH); Demarz, H. 4426 (*PERTH); Demarz, H. 8468 (*PERTH); Demarz, H. 10296 (*PERTH); Edwards, S.H. s.n. (PERTH 00456144); Foreman, J. 6 (*PERTH); Gardner, C.A. 2559 (PERTH); Gardner, C.A. 3166 (*PERTH); Gardner, C.A. 3240 (PERTH); Gardner, C.A. 6138 (*PERTH); Gardner, C.A. 6173 (PERTH); Gardner, C.A. s.n. (*PERTH 00456179); George, A.S. 953 (PERTH); George, A.S. 1405 (PERTH); George, A.S. 1449 (*PERTH); George, A.S. 11390 (PERTH); George, A.S. 12118 (*PERTH); Keighery, G.J. 5110 (*PERTH); Lawson, J.A. s.n. (*PERTH 00456160); Linto, A.C. 15 (*PERTH); McCrumm 19 (*PERTH); McCrumm, E. s.n. (*PERTH 00456195); O'Shaughnessy, E.H. s.n. (*PERTH 00456217); Prowse, E.W. s.n. (*PERTH 00456187); Royce, R.D. 1726 (*PERTH); Speck, N.H. 1444 (*PERTH); Symon, D.E. 2317 (*PERTH); Wilcox, D.G. s.n. (*PERTH 00456209).

Mucuna gigantea

Lullfitz, F. and MacKenzie, D.A. s.n. (PERTH 00456349).

M. reptans

Dunlop, C.R. 5328 (PERTH); Keighery, G.J. 2643 (PERTH); Saxon, E.C. s.n. (PERTH 00456357).

Muelleranthus stipularis

George, A.S. 3902 (PERTH); George, A.S. 8408 (PERTH); Maconochie, J. 1388 (PERTH).

M. trifoliolatus

Goodall, D.W. 3076 (PERTH); Humphries, A.W. s.n. (PERTH 00456314); Main, A.R. s.n. (PERTH 00456322).

Plagiocarpus axillaris

George, A.S. 13648 (PERTH); George, A.S. 13755 (PERTH); George, A.S. 13861 (PERTH); George, A.S. 14103 (PERTH); Kenneally, K.F. 4450 (PERTH).

Psychosema pusillum

George, A.S. 11153 (PERTH).

Templetonia aculeata

Cranfield, R.J. 2389 (PERTH); Donner, N.N. 4541 (PERTH); Strid, A. 20325 (PERTH).

T. biloba

Cranfield, R.J. R28 (PERTH); Cranfield, R.J. 2864 (PERTH); Demarz, H. 3279 (PERTH); Seabrook, J. 29 (PERTH).

T. drummondii

Andrews, C. s.n. (PERTH 00456225); George, A.S. 9231 (PERTH); Royce, R.D. 3838 (PERTH).

T. hookeri

Blackwell, M.I. BB101 (PERTH); Burbidge, N.T. 813 (PERTH); Hartley, T.G. 14650 (PERTH).

T. incana

Beard, J.S. 4888 (PERTH); George, A.S. 14730 (PERTH); Palmer, K. 22 (PERTH).

T. neglecta

George, A.S. 7236 (PERTH); Newbey, K. 2843 (PERTH); Wittwer, E. 412 (PERTH).

T. retusa

Donner, N.N. 2710 (PERTH); Newbey, K. 259 (PERTH); Turner, B.L. 5548 (PERTH).

Vigna lanceolata

Beard, J.S. 8375 (PERTH); Gardner, C.A. s.n. (PERTH 00463361); George, A.S. 10751 (PERTH); Kenneally, K.F. 9100 (PERTH); Royce, R.D. 7388 (PERTH); Saxon, E.C. s.n. (PERTH 00463353).