

TABLE 1. Continued.

Scale insects collected	Host plant species/Common names In Portuguese shown in quotes	Plant family	Plant origin	Plant Form
<i>Saissetia coffeae</i> (Walker, 1852) (drm, mlw)	* <i>Ervatamia coronaria</i> Stapf. "jasmim-café"	Apocynaceae	exotic	shrub
	* <i>Pseuderanthemum atropurpureum</i> Radlk. "pseuoerântemo"	Acanthaceae	exotic	shrub
	** <i>Nephrolepis</i> sp. "samambaia"	Davalliaceae	—	herb
	* <i>Asparagus africanus</i> "aspargo"	Liliaceae	exotic	herb
Diaspididae				
<i>Abgrallaspis cyanophylli</i> (Signoret, 1869) (vrw)	* <i>Philodendron</i> sp. "filodendro"	Araceae	native	shrub
<i>Acutaspis perseae</i> (Comstock, 1881) (vrw)	** <i>Dietes iridioides</i> Sweet "moréia"	Iridaceae	exotic	herb
<i>Chrysomphalus aonidum</i> (Linnaeus, 1758) (vrw)	<i>Chrysalidocarpus luteceus</i> Wendl. "areca-bambu"	Palmae	exotic	palm tree
	* <i>Dracaena marginata</i> Lam. "dracena-de-madagascar"	Liliaceae	exotic	shrub
	"orquidea"	Orchidaceae	—	herb
<i>Chrysomphalus dictyospermi</i> (Morgan, 1889) (vrw)	<i>Rosa</i> sp. "roseira"	Rosaceae	exotic	shrub
<i>Diaspis boisduvalii</i> Signoret, 1869 (drm, vrw)	* <i>Oncidium varicosum</i> Lindl. "chuva-de-ouro"	Orchidaceae	native	herb
	<i>Cattleya walkueriana</i> var. <i>princeps</i> Barb. Rodr. "orquidea"	Orchidaceae	native	herb
<i>Fiorinia fioriniae</i> (Targioni-Tozzetti, 1867) (drm, vrw)	* <i>Camellia japonica</i> "camélia"	Theaceae	exotic	shrub
	<i>Podocarpus lambertii</i> Klotz. "podocarpo"	Podocarpaceae	native	shrub
<i>Hemiberlesia rapax</i> (Comstock, 1881) (vrw)	* <i>Chrysalidocarpus luteceus</i> "areca-bambu"	Palmae	exotic	palm tree

74% of host plants were exotics, and all were perennials. One hundred and two coccoid-plant associations were recorded; 26 of them were new for the scale species and 60 were new for Brazil. Thirty-five species of scale insects were identified, including 18 diaspidids (armored scales), 8 coccids (soft scales), 6 pseudococcids (mealybugs), 2 ortheziids (ensign scales), and 1 eriococcid (felt scale). The *Icerya* sp. (Margarodidae) found on *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae) is probably *Icerya purchasi* Maskell (Table 1).

Pulvinaria urbicola Cockerell, 1893 (Coccidae), *Phenacoccus similis* Granara de Willink, 1983

(Pseudococcidae), and *Orthezia molinari* (Morrison, 1952) (Ortheziidae) were recorded for the first time in Brazil.

Based on host-plant information provided in Morrison (1952), Vernalha (1953), Silva et al. (1968), Ben-Dov (1993, 1994), Ben-Dov et al. 2001, and Williams and Granara de Willink (1992), 30 of the scale-insect species are polyphagous, 4 are oligophagous, and 1 is monophagous (Table 1).

Among the polyphagous species, the most commonly encountered were *Coccus viridis* and *Saissetia coffeae* (Coccidae); *Ischnaspis longirostris*, *Pinnaaspis strachani* and *Parlatoria proteus* (Diaspid-

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<i>Howardia biclavis</i> (Comstock, 1833) (vrw)	** <i>Ervatamia coronaria</i> "jasmim-café"	Apocynaceae	exotic	shrub
<i>Ischnaspis longirostris</i> (Signoret, 1882) (drm, vrw)	<i>Chrysalidocarpus luteceus</i> "areca-bambu"	Palmae	exotic	palm tree
	** <i>Ctenanthe oppenheimiana</i> Schum. "maranta-variegata"	Marantaceae	native	herb
	** <i>Dietes iridioides</i> "moréia"	Iridaceae	exotic	herb
	<i>Ficus benjamina</i> L. "ficus"	Moraceae	exotic	tree
	* <i>Heliconia rostrata</i> Ruiz et. Pav. "helicônia"	Musaceae	exotic	shrub
	<i>Ixora coccinea</i> L. "ixora-coral"	Rubiaceae	exotic	shrub
	<i>Phoenix roebelinii</i> O' Brien. "tamareira-de-jardim"	Palmae	exotic	palm tree
<i>Parlatoria proteus</i> (Curtis, 1843) (vrw)	* <i>Monstera</i> sp. "monstera"	Araceae	_____	herb
	* <i>Schefflera arboricola</i> "chefflera-pequena"	Araliaceae	exotic	shrub
	** <i>Spathiphyllum wallissii</i> Regel "lírio-da-paz"	Araceae	exotic	herb
	* <i>Yucca elephantipes</i> Hort. ex Regel "iuca-elefante"	Liliaceae	exotic	shrub
	"orquidea"	Orchidaceae	_____	herb
<i>Pinnaspis aspidistrae</i> (Signoret, 1869) (drm, vrw)	* <i>Platyserium bifurcatum</i> (Cav.) Chr. "chifre-de-veado"	Polypodiaceae	exotic	herb

idae); *Phenacoccus madeirensis* and *Pseudococcus longispinus* (Pseudococcidae); and *Orthezia insignis* (Ortheziidae). These eight species occurred on 42% of the scale-infested hosts.

Eriococcus campinensis (Eriococcidae), described by Hempel (1937), and *Acutaspis oliverai* (Diaspididae), described by Lepage and Giannotti (1942), are recorded from Brazil only, and *Orthezia molinari* (Ortheziidae) and *Phenacoccus similis* (Pseudococcidae), previously were recorded by Morrison (1952) and Williams and Granara de Willink (1992), respectively, only in Argentina. It is possible that additional records will place these species in the polyphagous category.

Kuwanaspis bambusicola (Diaspididae), collected from *Bambusa gracilis*, is a monophagous species. According to Ben-Dov (1990), this species has been reported from species in only two genera of bamboo, *Bambusa* and *Dendrocalamus*.

Most samples of scale insects were collected from plants growing in pots or narrow flower beds in the shade (indoors) or semi-shade (under nursery netting, trees, or open porches). Infestations of the armored scale *Ischnaspis longirostris* on *Ficus benjamina* and of the mealybug *Pseudococcus longispinus* on *Cordilyne terminalis* were found only on potted plants, with the former interaction occurring both in shade and in bright sunlight and the latter only indoors. In larger flowerbeds where these pests were found, they appeared in small numbers.

Dense scale-insect populations were observed on the majority of host plants. Most infested plants showed symptoms such as dried or shriveled leaves; in a small number of cases flowers or fruit were aborted and leaves were deformed. Chlorosis of leaf tissue was detected mainly on hosts infested by species of Diaspididae.

TABLE 1. Continued.

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<i>Pinnaspis strachani</i> (Cooley, 1899) (vrw)	* <i>Asparagus densiflorus</i> (Kunth.) Jess. var. <i>sprengeri</i> Hort. "aspargo-pendente"	Liliaceae	exotic	herb
	* <i>Bauhinia variegata</i> Linn. "pata-de-vaca"	Fabaceae	native	tree
	<i>Hibiscus rosa-sinensis</i> L. "hibisco"	Malvaceae	exotic	shrub
	* <i>Murraya exotica</i> "falsa-murta"	Rutaceae	exotic	tree
	** <i>Nephrolepis exalta</i> Schot var. <i>forida-ruffle</i> "samambaia-crespa"	Davalliaceae	native	herb
<i>Pinnaspis</i> sp. (vrw)	<i>Asplenium nidus</i> L. "asplênio"	Aspleniaceae	exotic	herb
<i>Pseudaonidia trilobitiformis</i> (Green, 1896) (drm, vrw)	* <i>Nerium oleander</i> L. "espirradeira"	Apocynaceae	exotic	shrub
	* <i>Ficus pumila</i> L. "unha-de-gato"	Moraceae	exotic	tree
<i>Pseudaulacaspis pentagona</i> (Targioni -Tozzetti, 1886) (vrw)	sp. 2 "orquidea"	Orchidaceae	—	herb
	* <i>Ligustrum sinense</i> Lour. "ligustro-chinês"	Oleaceae	exotic	shrub
<i>Pseudischnaspis bowreyi</i> (Cockerell, 1893) (vrw)	* <i>Chrysalidocarpus lutecens</i> "areca-bambu"	Palmae	exotic	palm tree
<i>Selenaspis articulatus</i> (Morgan, 1889) (vrw)	** <i>Ervatamia coronaria</i> "jasmim-café"	Apocynaceae	exotic	shrub
	* <i>Murraya exotica</i> "falsa-murta"	Rutaceae	exotic	tree
Margarodidae: <i>Icerya</i> sp. (drm)	<i>Pittosporum tobira</i> (Thunb.) Ait. "pitosporo-japonês"	Pittosporaceae	exotic	shrub

Sooty-mold frequently was found on plants infested by species of Ortheziidae, Pseudococcidae, and Coccidae. A large amount of sooty mold was found on *Nectandra megapotamica* infested by *Nipaeococcus nipae* (Pseudococcidae) and on *Schefflera arboricola* and *S. actinophylla* infested by *Orthezia* sp. (Ortheziidae).

Withered and dead plants of *Cordilyne terminalis* were observed infested by *P. longispinus* (Pseudococcidae) as were plants of *Asparagus densiflorus* and *Murraya exotica* infested by *Pinnaspis strachani* (Diaspididae), and *Saintpaulia ionantha* infested by *Phenacoccus similis* (Pseudococcidae). These plants were apparently negatively impacted

because of direct and indirect damage caused by these insects.

In most cases, it was not possible to determine the extent of the ultimate destruction caused by these insects because most infested hosts were treated in some way to protect them from extensive damage.

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TABLE 1. Continued.

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Ortheziidae				
<i>Orthezia insignis</i> Browne, 1887 (drm, alp)	<i>Ardisia crenata</i> Sims. "ardísia"	Myrsinaceae	exotic	shrub
	* <i>Iresine herbstii</i> Hook. "iresine"	Amaranthaceae	native	shrub
	* <i>Duranta repens</i> L. var. <i>aurea</i> Hort. "pingo-de-ouro"	Verbenaceae	native	shrub
	** <i>Pseuderanthemum atropurpureum</i> "pseudoerântemo"	Acanthaceae	exotic	shrub
	** <i>Pachystachys lutea</i> Nees. "camarão-amarelo"	Acanthaceae	exotic	shrub
	<i>Solenostemon scutellarioides</i> (L.) Lodd. "cóleus"	Labiatae	exotic	herb
<i>Orthezia</i> sp (drm, alp).	<i>Brunfelsia uniflora</i> D. Don. "manacá-de-cheiro"	Solanaceae	native	shrub
	<i>Codiaeum variegatum</i> Blume. "cróton"	Euphorbiaceae	exotic	shrub
	<i>Dichorisandra thyrsiflora</i> Mik. "marianinha"	Comeliaceae	native	shrub
	<i>Duranta repens</i> L. "violeteira"	Verbenaceae	native	shrub
	<i>Euphorbia milii</i> des Moulins var. <i>milii</i> "coroa-de-cristo"	Euphorbiaceae	exotic	shrub
	<i>Euphorbia milii</i> des Moulins var. <i>breonii</i> Hort. "coroa-de-cristo"	Euphorbiaceae	exotic	shrub
	<i>Hibiscus syriacus</i> L. "hibisco-colunar"	Malvaceae	exotic	shrub
	<i>Lantana camara</i> L. "camarazinho"	Verbenaceae	native	shrub
	<i>Schefflera actinophylla</i> "cheflera"	Araliaceae	exotic	shrub
	<i>Schefflera arboricola</i> "cheflera-pequena"	Araliaceae	exotic	shrub
	<i>Syngonium podophyllum</i> Schott. "singônio"	Araceae	exotic	herb

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TABLE 1. Continued.

Scale insects collected	Host plant species/Common names in Portuguese shown in quotes	Plant family	Plant Origin	Plant form
Pseudococcidae				
<i>Ferrisia virgata</i> (Cockerell, 1893) (drm)	<i>Codiaeum variegatum</i> "cróton"	Euphorbiaceae	exotic	shrub
	** <i>Rhipsalis baccifera</i> (Mill.) Stearn "cacto-macarrão"	Cactaceae	exotic	herb
<i>Nipaeococcus nipae</i> (Maskell, 1893) (drm)	** <i>Nectandra megapotamica</i> Spreng. "canelinha"	Lauraceae	native	tree
<i>Phenacoccus madeiriensis</i> Green, 1923 (drm)	* <i>Pachystachys lutea</i> "camarão-amarelo"	Acanthaceae	exotic	shrub
	* <i>Salvia splendens</i> Ker-Gawl. "sangue-de-adão"	Labiatae	native	herb
	<i>Hibiscus rosa-sinensis</i> "hibisco"	Malvaceae	exotic	herb
	<i>Acalypha wilkesiana</i> M. Arg. "acalifa"	Euphorbiaceae	exotic	shrub
	<i>Lantana camara</i> "camarazinho"	Verbenaceae	native	shrub
<i>Planococcus</i> sp. (drm)	<i>Oncidium varicosum</i> Lindl. "chuva-de-ouro"	Orchidaceae	native	herb
<i>Planococcus citri</i> (Risso, 1813) (drm)	** <i>Kalanchoe blossfeldiana</i> v. Poelln. "calancoê"	Crassulaceae	exotic	shrub
<i>Pseudococcus longispinus</i> (Targioni-Tozzetti, 1867) (drm)	* <i>Cycas circinalis</i> Roxb. "cicas"	Cycadaceae	exotic	shrub
	** <i>Cordilyne terminalis</i> "dracena-vermelha"	Liliaceae	exotic	shrub
	** <i>Dracaena surculosa</i> Lindl. "dracena-bambu"	Liliaceae	exotic	shrub
	** <i>Syngonium podophyllum</i> "singônio"	Araceae	exotic	herb
	** <i>Rosa</i> sp. "roseira"	Rosaceae	exotic	shrub
<i>Pseudococcus</i> sp. (drm, alp)	<i>Davallia fejeensis</i> "renda-portuguesa"	Davalliaceae	exotic	herb
	<i>Dieffenbachia amoena</i> Hort. ex Gent. "comigo-ninguém-pode"	Araceae	exotic	herb

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