

Hosts of a Parasitic Alga, *Cephaleuros* Kunze, in Florida

R. B. MARLATT, Plant Pathologist, Agricultural Research and Education Center, Homestead, FL 33031; and S. A. ALFIERI, JR., Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville 32602

ABSTRACT

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This first updated list of hosts in the U.S.A. of the parasitic alga, *Cephaleuros* Kunze, includes 157 species and cultivars belonging to 54 plant families. The alga was found on trunks, stems, leaves, and fruits, and 34 hosts exhibited obvious injury.

Cephaleuros Kunze is the most studied genus of plant pathogenic algae and the most damaging to crops and ornamentals. It occurs on cultivated and wild plants in neotropical areas from North Carolina to Argentina (8) and also in Africa, Asia, and Australia (3). Batista and Lima (1) listed 448 hosts of *Cephaleuros* in Pernambuco, Brazil, and Holcomb (2) reported 145 hosts in Louisiana. The Brazilian list did not mention the plant organs on which *Cephaleuros* was found or distinguish unaffected hosts from those that were damaged by the alga. These additional observations are included in the following list, along with the counties where *Cephaleuros* was found in Florida.

Most of the hosts and the alga were identified by plant pathologists of the Florida Department of Agriculture and Consumer Services, and most of the plant specimens were sent to them by the department's plant inspectors. Thus, the number of specimens received from a county may reflect the alga's relative occurrence, inspection efficiency, and interests of nurserymen and homeowners. Other sources of information included bulletins and journals (4-6,9).

This updated list of *Cephaleuros* hosts in Florida reveals the great diversity of its 157 species and cultivars, including ferns, cycads, palms, a grass, and a wide range of broadleaf plants. The alga occurs on leaves, stems, and fruits. Thirty-four hosts had very obvious injuries, including necrosis of the entire leaf area under a thallus, constriction or swelling of branches, and bark cracks. No pathogenicity tests were performed, however, and host injury was assumed to

be due to *Cephaleuros*. An earlier list of *Cephaleuros* hosts was included in a Florida plant disease index (7).

Families and genera are listed alphabetically, followed by the host's common name and the plant organ on which the alga was found, if recorded. Host injury is indicated by an asterisk after the organ. If known, counties in which a host was found are listed under the host's name.

ACANTHACEAE

- Justicia ghiesbreghtiana* Lem.; jacobinia. Stem. County: Hillsborough.
Thunbergia grandiflora (Roxb. ex Rottl.) Roxb.; clockvine. Leaf. County: Seminole.

ACERACEAE

- Acer* sp.; maple. Stem. County: Hillsborough.

ANACARDIACEAE

- Anacardium occidentale* L.; cashew. Leaf. County: Broward.
Mangifera indica L.; mango. Leaf. Counties: Broward, Dade, St. Lucie.
Metopium toxiferum (L.) Krug & Urban; poisonwood. Leaf. County: Dade.

APOCYNACEAE

- Carissa carandas* L.; Karanda. Leaf. County: Dade.
C. grandiflora (E. H. Mey.) A. DC.; Natal plum. Leaf. County: Lee
Nerium oleander L.; oleander. Leaf. Counties: Seminole, Volusia.
Trachelospermum jasminoides (Lindl.) Lem.; confederate jasmine. Leaf. Counties: Baker, Volusia.

AQUIFOLIACEAE

- Ilex cassine* L.; holly. Leaf*. Counties: Orange, Polk.
I. cornuta Lindl. & Paxt.; Chinese holly. Stem*. Counties: Alachua, Baker, Orange, Seminole.
I. cornuta Lindl. & Paxt. 'Burfordii'; Burford holly. Leaf*, stem*. Counties: Hillsborough, Orange, Volusia.
I. crenata Thunb.; Japanese holly. Leaf. Counties: Baker, Polk.
I. opaca Ait.; American holly. Leaf*. Counties: Alachua, Orange, Hillsborough.
I. rotunda Thunb.; round holly, Kurogane holly. Leaf. County: Seminole.
Ilex sp.; Florida wild holly. Leaf, stem*. Counties: Hillsborough, Orange, Polk.

ARACEAE

- Aglaonema* sp.; aglaonema. Leaf. Counties: Dade, Orange.
Anthurium andraeanum Lindl.; flamingo lily. Leaf. County: Orange.
Monstera deliciosa Liebm.; ceriman. Leaf. Counties: Dade, Palm Beach.
Philodendron radiatum Schott; Dubia philodendron. Leaf. County: Dade.
Spathiphyllum sp.; spathe flower. Counties: Broward, Dade.

ARALIACEAE

- Brassaia actinophylla* Endl.; schefflera. Leaf. Counties: Brevard, Broward, Dade, Hillsborough, Indian River, Orange, Palm Beach, Polk, St. Lucie, Volusia.
Fatsyhedera lizei (Cochet) Guillaum.; fatsyhedera. Leaf. County: Seminole.
Hedera helix L.; English ivy. Leaf. County: Hillsborough.

BERBERIDACEAE

- Mahonia nervosa* (Pursh) Nutt.; Oregon grape. Leaf. Counties: Hillsborough, Volusia.

BIGNONIACEAE

- Tabebuia pentaphylla* (L.) Hemsl.; trumpet tree. Leaf. County: Dade.

BIXACEAE

- Bixa orellana* L.; anatto-tree. Branch* (6).

BOMBACACEAE

- Pachira aquatica* Aubl.; Guiana chestnut. County: Dade.

BORAGINACEAE

- Cordia obliqua* Willd.; cordia. Leaf. County: Broward.

CAPRIFOLIACEAE

- Viburnum odoratissimum* Ker-Gawl.; sweet viburnum. Leaf. Counties: Brevard, Hillsborough, Seminole.
V. suspensum Lindl.; viburnum. Leaf. Counties: Alachua, Hillsborough, Palm Beach, Volusia.
Viburnum sp.; viburnum. Leaf. Counties: Brevard, Volusia.

COMBRETACEAE

- Bucida buceras* L.; black olive. Leaf. County: Palm Beach.

CORNACEAE

- Aucuba japonica* Thunb. 'Variegata'; gold-dust tree. Leaf. Counties: Baker, Volusia.

CUPRESSACEAE

- Juniperus* sp.; juniper. Leaf. County: Seminole.

CYCADACEAE

- Zamia furfuracea* L. f.; Jamaica sago-palm. Leaf. Counties: Alachua, Dade.
Z. integrifolia Ait.; coontie. Leaf. County: Dade.

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EBENACEAE

Diospyros kaki L. f.; Japanese persimmon. Stem. (6).

ERICACEAE

Arbutus unedo L.; strawberry tree. Leaf. Counties: Duval, Hillsborough.
Rhododendron indicum (L.) Sweet; azalea. Leaf*. County: Polk.
Rhododendron sp.; azalea. Leaf*, stem*. Counties: Dade, Hillsborough, Manatee.
Vaccinium ashei Reade; rabbit-eye blueberry. Leaf, stem*. County: Alachua.

EUPHORBIACEAE

Antidesma bunius (L.) K. Spreng.; bignay, Chinese laurel. Leaf. County: Palm Beach.
Bischofia javanica Blume; bishopwood tree. Leaf. Counties: Broward, Dade, Lee, Palm Beach, Polk.
Codiaeum variegatum (L.) Blume var. *pictum* (Lodd.) Mull. Arg.; croton. Leaf. County: Collier.

FAGACEAE

Quercus glauca Thunb.; ring-cupped oak. Leaf. County: Hillsborough.
Q. virginiana Mill.; live oak. Leaf. County: Seminole.
Quercus sp.; oak. Leaf. County: Jefferson.

FLACOURTIACEAE

Flacourtia indica (Burm. f.) Merr.; governor's plum. Leaf. County: Dade.

GRAMINEAE

Bambusa sp.; bamboo. Stem. Counties: Dade, Monroe.

JUGLANDACEAE

Carya illinoensis (Wang.) C. Koch; pecan. Stem (6).

LABIATAE

Thymus sp.; thyme. Leaf. County: Dade.

LAURACEAE

Cinnamomum camphora (L.) J. Presl; camphor tree. Leaf. County: Orange.
Nectandra coriacea (Sw.) Griseb.; lancewood. Leaf. County: Dade.
Persea americana Mill.; avocado. Leaf. Counties: Baker, Broward, Dade, Hendry, Hillsborough, Lake, Palm Beach, Polk, Volusia.

LEGUMINOSAE

Acacia auriculiformis A. Cunn. ex Benth.; acacia. Stem* (6).
Albizia brownii Walp.; albizia. Stem (6).
A. chinensis (Osb.) Merr.; woman's tongue. Stem (6).
A. lebeck (L.) Benth.; lebbek. Stem (6).
Calliandra sp.; powderpuff. Leaf. County: Dade.
Pongamia pinnata (L.) Pierre; pongam, karum tree. Stem (6).
Wisteria sinensis (Sims) Sweet; Chinese wisteria. Stem. County: Hillsborough.

LILIACEAE

Sansevieria zeylanica (L.) Willd.; sansevieria. Leaf. County: Orange.

LYTHRACEAE

Lagerstroemia indica L. 'Far East'; crape myrtle. Leaf. County: Alachua.

MAGNOLIACEAE

Magnolia grandiflora L.; magnolia. Leaf*. Counties: Alachua, Baker, Brevard,

Broward, DeSoto, Duval, Hernando, Hillsborough, Indian River, Lee, Leon, Liberty, Manatee, Orange, Pasco, Pinellas, Polk, Putnam, Sarasota, Seminole, Suwanee, Volusia.

M. × soulangeana Soul.-Bod.; Japanese magnolia. saucer magnolia. Leaf. County: Volusia.

M. virginiana L.; sweet bay. Counties: Alachua, Polk.

Michelia figo (Lour.) K. Spreng.; banana shrub. Leaf*. County: Volusia.

MALPIGHIACEAE

Bunchosia lanceolata Turcz.; bunchosia.
Malpighia glabra L.; Barbados cherry. Leaf. County: Martin.

MALVACEAE

Hibiscus rosa-sinensis L.; hibiscus. Leaf. County: Hillsborough.
H. tiliaceus L.; mahoe. Leaf. County: Dade.

MORACEAE

Ficus benghalensis L.; banyan. Leaf. County: Palm Beach.
F. benjamina L.; weeping fig. Leaf. County: Palm Beach.
F. elastica Roxb. ex Hornem.; rubber plant. Leaf. County: Brevard.
F. elastica Roxb. ex Hornem. 'Decora'; rubber plant. Leaf. Counties: Dade, Polk.
F. pumila L.; creeping fig. Leaf. Counties: Orange, Palm Beach.
F. retusa L.; Chinese banyan, Indian laurel, Cuban laurel. Leaf. Counties: Lee, Palm Beach.
F. triangularis Warb.; triangle fig. Leaf. County: Alachua.

MYRICACEAE

Myrica cerifera L.; wax myrtle. Trunk, stem. County: Hillsborough.
M. faya Ait.; candleberry myrtle. Branch * (6).

MYRSINACEAE

Ardisia crenata Sims; coral berry.

MYRTACEAE

Callistemon sp.; bottlebrush. Leaf. Counties: Broward, Dade.
Eugenia uniflora L.; Surinam cherry. Leaf. Counties: Palm Beach, Seminole.
Eugenia sp.; Leaf. Counties: Brevard, Hendry.
Feijoa sellowiana O. Berg.; feijoa, pineapple guava. Leaf. Counties: Alachua, Hillsborough, Jefferson, Orange.
Melaleuca quinquenervia (Cav.) S. T. Blake; punk tree. Leaf. Counties: Baker, Broward, Hendry, Lee, Leon, Okeechobee, Polk, St. Johns, Volusia.
Myrciaria cauliflora (DC.) O. Berg.; jaboticaba. Leaf. County: Polk.
Psidium cattleianum Sabine; strawberry guava. Leaf. County: Volusia.
P. guajava L.; guava. Leaf*, fruit*. Counties: Dade, Indian River, Lee.
Rhodomyrtus tomentosa (Ait.) Hassk.; downy myrtle. Leaf. Counties: Collier, Orange.
Syzygium cumini (L.) Skeels; Jambolan plum. Leaf*. Counties: Lee, Palm Beach.

NYCTAGINACEAE

Bougainvillea glabra Choisy; bougainvillea. Leaf. County: Seminole.
Jasminum sp.; jasmine. Leaf. County: Dade.
Ligustrum japonicum Thunb.; Japanese privet. Leaf. Counties: Alachua, Polk.
Ligustrum sp.; Leaf. Counties: Baker, Hillsborough, Pinellas.
Osmanthus heterophyllus (G. Don) P.S.

Green; holly osmanthus. Leaf. Counties: Alachua, Hillsborough.

ORCHIDACEAE

Cattleya sp.; orchid. Leaf. County: Palm Beach.

PALMACEAE

Butia capitata (Mart.) Becc.; pindo palm. Leaf. County: Alachua.
Sabal palmetto (Walt.) Lodd. ex Schult. & Schult. f.; cabbage palm. Leaf. County: Marion.

PIPERACEAE

Peperomia obtusifolia (L.) A. dietr.; peperomia. Leaf.

PLATANACEAE

Platanus occidentalis L.; sycamore. Stem*. County: Hillsborough.

POLYGONACEAE

Coccoloba diversifolia Jacq.; pigeon-plum. Leaf*. Counties: Dade, Indian River.
C. uvifera (L.) L.; sea grape. Leaf*. Counties: Brevard, Dade.

POLYPODIACEAE

Cyrtomium falcatum (L.f.) K. Presl; holly-fern. Leaf. County: Gilchrist.
Platynerium bifurcatum (Cav.) C. Chr.; staghorn fern. Leaf. Counties: Dade, Lee.
P. hillii T. Moore; elk's-horn fern. Leaf. County: Dade.
P. vassei Poiss.; staghorn fern. Leaf. County: Dade.
P. veitchii (Underw.) C. Chr.; staghorn fern. Leaf. County: Dade.

PROTEACEAE

Grevillea robusta A. Cunn.; silk oak (6).
Macadamia integrifolia Maid. & Betche; macadamia nut. Leaf. County: Lake.

RHAMNACEAE

Hovenia dulcis Thunb.; Japanese raisin tree (6).
Ziziphus mauritiana Lam.; Indian jujube (6).

ROSACEAE

Chrysobalanus icaco L.; cocoplum. Leaf. Counties: Broward, Dade.
Eriobotrya japonica (Thunb.) Lindl.; loquat. Leaf. County: Hillsborough.
Malus sylvestris Mill.; apple. Stem. County: Hillsborough.
Photinia sp.; photinia. Leaf. County: Volusia.
Pyracantha coccinea M. J. Roem.; firethorn. Stem. County: Hillsborough.
Raphiolepis indica (L.) Lindl.; India-hawthorn. Leaf. County: Baker.
Rubus sp. 'Brazos'; Brazos blackberry. Stem. County: St. Lucie.

RUBIACEAE

Gardenia jasminoides Ellis; gardenia. Leaf. County: Palm Beach.
Genipa clusifolia (Jacq.) Griseb.; seven-year apple. Leaf. County: Dade.
Ixora coccinea L.; ixora. Leaf. County: Dade.

RUTACEAE

Citrus aurantifolia (Christm.) Swingle 'Tahiti'; Persian lime. Leaf*, stem*. Counties: Brevard, Broward, Collier, Dade, Hendry, Highlands, Hillsborough, Indian River, Lee, Manatee, Orange, Osceola, Palm Beach, Pasco, Seminole, Volusia.
C. aurantifolia (Christm.) Swingle; key lime. Leaf*. County: Dade.

C. limon (L.) Burm. f.; lemon. Leaf*. Counties: Broward, Dade, Hendry, Highlands, Hillsborough, Lee, Palm Beach, Pinellas, Polk.

C. limon (L.) Burm. f. 'Meyer'; Meyer lemon. Stem* (5).

C. limon (L.) Burm. f. 'Rough'; rough lemon. Trunk*. County: Dade.

C. × noblis Lour. 'Temple'; temple orange. Stem*. County: Polk.

C. × paradisi Macf.; grapefruit. Leaf*, branch*. Counties: Dade, Hardee, Highlands, Indian River, Lee, Polk, St. Lucie.

C. reticulata Blanco; tangerine. County: Manatee.

C. reticulata Blanco 'Lee'; tangerine. Stem* (5).

C. reticulata Blanco 'Osceola'; tangerine. Stem* (5).

C. reticulata Blanco 'Robinson'; tangerine. Stem* (5).

C. sinensis (L.) Osbeck 'Hamlin'; sweet orange. Leaf. County: Hillsborough.

C. sinensis (L.) Osbeck 'Page'; sweet orange. Trunk*. County: Hillsborough.

C. sinensis (L.) Osbeck 'Parson Brown'; sweet orange. County: Hillsborough.

C. sinensis (L.) Osbeck 'Queen Pineapple'; sweet orange. Trunk*. County: Dade.

C. sinensis (L.) Osbeck 'Valencia'; sweet orange. Leaf*, stem*. Counties: Broward, Dade, Hardee, Highlands, Hillsborough, Lee, Manatee, Orange, Pinellas, Polk, Sarasota.

Citrus sp. Leaf*, stem*. Counties: Collier, Dade, DeSoto, Hardee, Hendry, Highlands, Hillsborough, Madison, Polk, St. Lucie, Seminole.

Fortunella margarita (Lour.) Swingle; oval kumquat, Nagami kumquat (6).

Zanthoxylum fagara (L.) Sarg.; wild lime. Leaf. County: Indian River.

SAPINDACEAE

Euphoria longan (Lour.) Steud.; longan. Leaf*. Counties: Dade, Palm Beach.

Litchi chinensis Sonn.; litchi, leechee. Leaf. Counties: Dade, Polk, Sarasota.

Melicoccus bijugatus Jacq.; Spanish lime. Leaf. County: Dade.

SAPOTACEAE

Brunfelsia americana L.; lady-of-the-night. Leaf. County: Dade.

Chrysophyllum cainito L.; star-apple. Leaf. Counties: Dade, Lee.

C. oliviforme L.; satinleaf. Leaf. Counties: Dade, Lee.

Mimusops elengi L.; Spanish cherry. Leaf. County: Broward.

THEACEAE

Camellia japonica L.; camellia. Leaf*. Counties: Alachua, Baker, Bradford, Brevard, Clay, DeSoto, Duval, Escambia, Hardee, Hernando, Hillsborough, Jefferson, Lake, Leon, Manatee, Marion, Nassau, Okaloosa, Orange, Pasco, Pinellas, Polk, Putnam, Seminole, Suwannee, Union, Volusia.

C. sasanqua Thunb.; sasanqua camellia. Leaf. Counties: Alachua, Baker, Dade, Hillsborough, Jefferson, Leon, Orange, Pasco, Pinellas, Polk, Volusia.

Camellia sp. Leaf. County: St. Johns.

Cleyera japonica Thunb.; sakaki. Leaf. County: Baker.

Gordonia lasinathus (L.) Ellis; loblolly bay. Leaf. Counties: Hillsborough, Volusia.

VERBENACEAE

Avicennia germinans (L.) L.; black mangrove. Leaf. County: Lee.

ZINGIBERACEAE

Alpinia zerumbet (Pers.) B. L. Burt & R. M. Sm.; shell ginger. Leaf. County: Dade.

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