



A Practical Guide to Identifying Yams

The Main Species of *Dioscorea* in the
Pacific Islands

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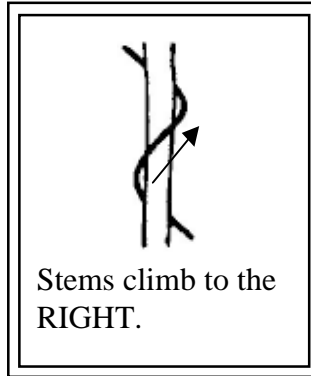


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Here is a simple guide to identifying the species of cultivated yams (*Dioscorea*) commonly found in the Pacific Islands. To use this guide in the field, look first at the way the yam stem twines as it climbs up its support. Then follow the guide, using other characteristics such as presence or absence of spines, aerial tubers, etc., to identify the species.

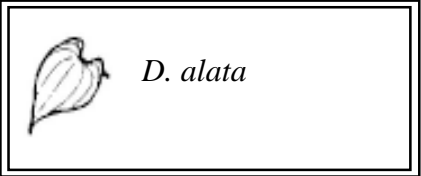
Check your decision by reading the descriptive notes given for each species at the end of the guide.

Stems Climb to the Right



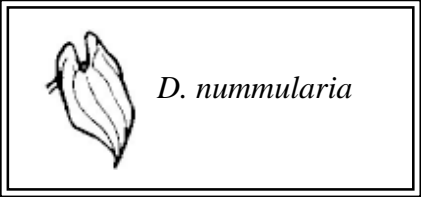
* Stems at TOP of plant round or with more than 4 ridges.

* Stem at BASE of plant usually winged but in some cultivars has few spines and no wings.
* Aerial tubers (bulbils) in some cultivars.

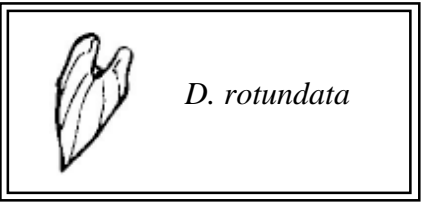


* Stems at TOP of plant winged or with 4 ridges.

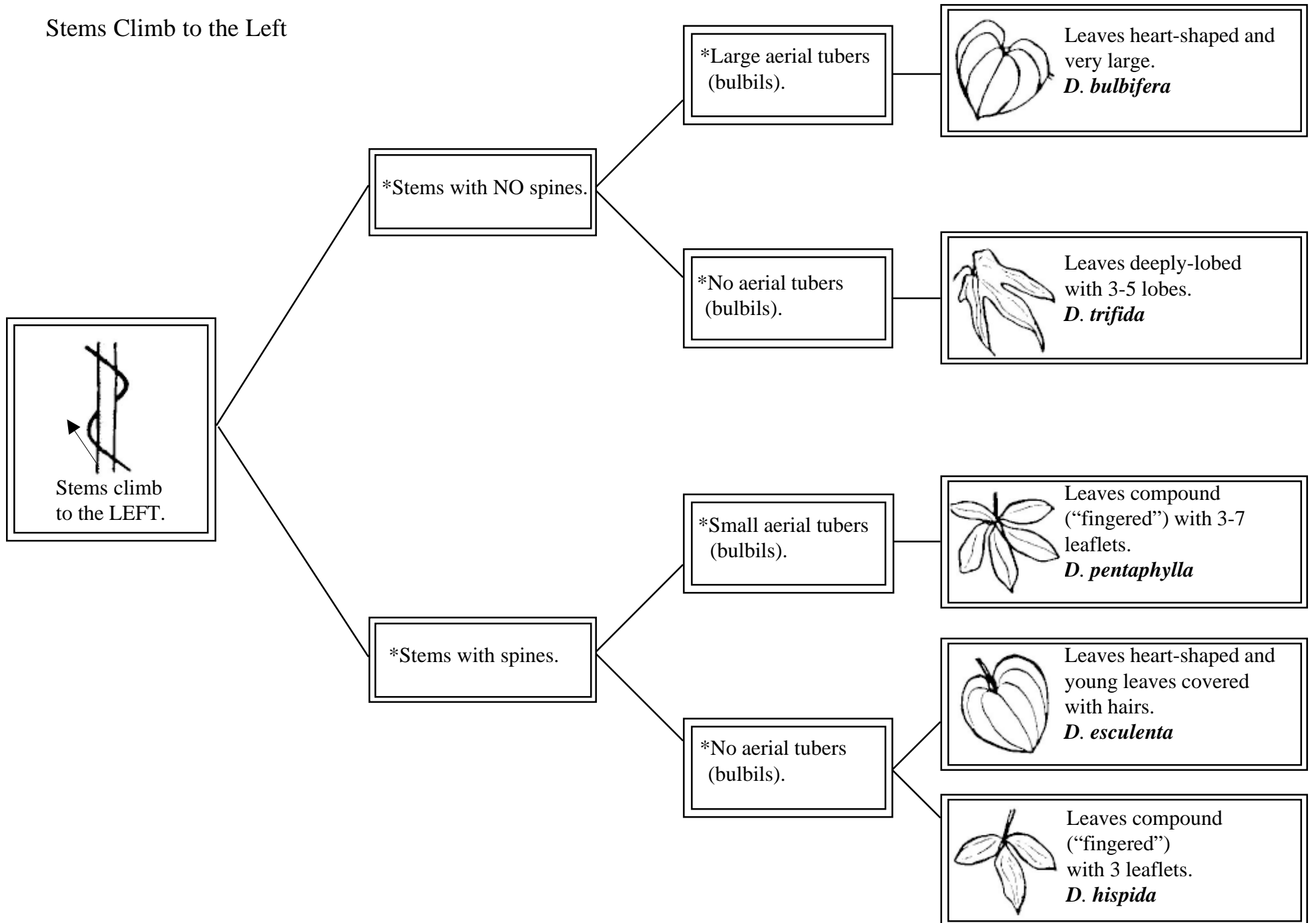
* Many spines at stem BASE.
* Long lateral branches.
* Short tuber dormancy (usually shorter than 2 months).
* No (or very rare) aerial tubers (bulbils).



* Some spines at stem BASE
* Short lateral branches.
* Long tuber dormancy (usually shorter than 2 months).
* No (or very rare) aerial tubers (bulbils).



Stems Climb to the Left



Dioscorea alata

water yam, winged yam, uvi (Fiji), ufi tau (Samoa), ufi (Tonga), soft yam (Vanuatu).

In the TOP part of the plant, stems have no spines and are winged with 4 ridges. Most cultivars also have wings and no spines on the stem at the BASE of the plant, but in a few cultivars the base of the stem has no wings and widely-spaced spines. In the Pacific there are only 2 species with WINGED stems: *D. alata* and *D. trifida*, but you cannot confuse them because *D. trifida* has lobed leaves and *D. alata* does not.

Some cultivars of *D. alata* have aerial tubers which vary from many to few. Other cultivars have no aerial tubers.

Most cultivars of this species are susceptible to the disease anthracnose, but there are a few resistant cultivars. All cultivars observed to date are susceptible to rose beetle attack and often the leaves are badly damaged with many holes.

Dioscorea nummularia

pacific yam hard yam, strong yam, puria (Vanuatu), ufi palai (Samoa), tivoli (Fiji), rauva (Fiji), tikau (Fiji).

Stems in the TOP part of the plant are round or ridged with MORE THAN 4 ridges. Stems at the BASE of the plant usually have many spines.

A few poorly-differentiated aerial tubers have been observed in *D. nummularia*, but these are very rare.

Tubers of some cultivars are difficult to dig because they are large, very long, branched and irregular in shape. But other cultivars produce clusters of approximately 5-15 small tubers which are easy to dig.

Local names meaning “hard” yam or “strong” yam are often given to cultivars of this species: “hard” because the flesh is drier and a hard texture after cooking, and “strong” because the growing tubers can penetrate hard, untilled soils better than other species.

D. nummularia is cultivated in many islands but in some it is collected from the bush and forest.

D. nummularia should not be mistaken for *D. alata* because it never has wings or only 4 ridges on the stems. Also it is resistant to leaf damage from anthracnose and rose beetle which is common on *D. alata*.

However, it is very difficult to distinguish *D. nummularia* from *D. rotundata*.

D. rotundata

white yam, African yam, Martinique yam (Vanuatu), 6-month yam (Vanuatu).

D. rotundata has been recently introduced into the Pacific, spreading from New Caledonia and other French territories within the last 50 years or so. It is now found in New Caledonia, Vanuatu (“6-month yam”), Solomon Islands

(introduced as seeds from IITA, Nigeria), and Fiji, but is still relatively rare.

D. rotundata is usually more susceptible to yam virus than other species and its leaves often show mottling and green vein-banding symptoms.

A few poorly-differentiated aerial tubers have been observed in *D. rotundata* but these are very rare.

It is very difficult to distinguish this species from *D. nummularis*, although *D. rotundata* plants often have fewer spines and shorter lateral branches and the tubers usually have a longer dormancy (longer than 2 months) and store better. Also, *D. rotundata* plants usually produce 1 medium-sized tuber plus 1-2 small tubers compared to *D. nummularia* with 1-2 long tubers or clusters of 5-15 small tubers. The tuber flesh of *D. rotundata* is intermediate in texture, - not as hard as *D. nummularia* but not as soft as *D. alata*.

Dioscorea bulbifera

Aerial yam, potato yam, peivou (Vanuatu), hoi (Tonga), soi (Samoa).

Aerial tubers are large and roundish in shape. Stems have no spines and no wings. Leaves are heart-shaped and larger than other species. In the Pacific this species is found mostly as a wild or weedy plant with aerial tubers which are poisonous unless specially prepared. However, there are a few cultivars which produce edible (not poisonous) aerial

tubers, and even some cultivars where both the aerial tuber and the underground tuber can be eaten.

Dioscorea pentaphylla

Five-fingered yam, pirita, lena, hipo (Vanuatu), ufi vavae (Samoa).

In the Pacific Islands there are only 3 species of cultivated yams which have indented or “fingered” leaves: *D. pentaphylla*, *D. hispida* and *D. trifida*.

It is easy to tell them apart this way:

D. trifida leaves are only lobed; the “fingers” are not completely separated. *D. trifida* is also the only one of the 3 with wings on the stem.

D. pentaphylla and *D. hispida* both have compound leaves; the “fingers” are completely separated into leaflets. The leaves of *D. pentaphylla* have 3-7 leaflets and some leaves with 5 leaflets are always present. *D. hispida* leaves generally have only 3 leaflets.

Also, most (perhaps all) cultivars of *D. pentaphylla* have small aerial tubers, whereas aerial tubers have not been reported on *D. hispida*.

Dioscorea trifida

Cushcush yam, African yam (Vanuatu)

This is the only species with both lobed leaves and wings on the stem. See notes under *D. pentaphylla*.

Aerial tubers have not been reported on *D. trifida*.

D. trifida has not been recently introduced into the Pacific.

Dioscorea esculenta

Sweet yam, Chinese yam, kawai (Fiji), sarsau (Vanuatu), pana (Solomon Islands), ufi lei (Tonga, Samoa).

Plants have spines not only at the base of the plant, but also on the upper part of the stem and often on the leaf petioles. Some cultivars also have spines on the roots. Leaves are heart-shaped but smaller than *D. bulbifera*. Very young leaves at the tips of the vines are covered with so many hairs that they look like velvet. *D. esculenta* is the only cultivated species in the Pacific Islands which climbs to the left AND has leaves with no “fingers” AND has spines on the stem.

Aerial tubers have not been reported on *D. esculenta*.

Dioscorea hispida

Bitter yam.

This is the only species in which most of the leaves have only 3 leaflets. See notes under *D. pentaphylla*.

Aerial tubers have not been reported on *D. hispida*.

Tubers are poisonous unless specially prepared.