

An Unidentified *Carica* Species Found in Trinidad

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Introduction

The family Caricaceae has four genera (*Carica*, *Cylicomorpha*, *Jacaratia*, *Jarilla*) and 31 species (Mabberley 1987) of which *Carica papaya* L. (papaw) is the most widespread and well known species grown throughout the tropics mainly for its edible fruits.

Carica papaya is cultivated in Trinidad and Tobago, although it is partially naturalized around human settlement and nearby clearings. No other native or introduced species of *Carica* is recorded in the Flora of Trinidad and Tobago but herbarium records and recent collections from at least four different localities in the Northern Range suggest the presence of a native species.

The existence of a "wild papaw" collected in a gully off the El Tucuche trail just above 450 m was brought to the attention of the authors in April 1987, when a specimen consisting of young fruit, female flower and leaf was submitted for identification at the National Herbarium of Trinidad and Tobago. It was quickly recognized as a rare, unknown species of *Carica* which matched two previously preserved specimens in the herbarium. Within the last two years, on at least four separate occasions, members of the public have been turning up with fruits of this plant from various localities. We have been following up these locality records and accumulating data for any specialist who may recognize or wish to study this plant.

Field Collections and Observations

From two sites, herbarium specimens were collected and photographs of living plants were taken *in situ*. The first site was visited in May 1987 on the El Tucuche trail about 450 m above sea level, where a small population of four plants at various stages of development was seen. Of the four plants, two were mature trees with female flowers and immature fruits. One of the mature trees seemed to be dying but, whether through senescence or disease it was difficult to determine. Trees with male flowers were sought in the vicinity without success.

The second site visited in March 1988 was in the Santa Cruz Valley, near the headwaters of the Gasparillo River at ca. 450 m above sea level. This was a larger population with at least a dozen trees, some bearing male flowers and the others producing female flowers and fruits. Herbarium specimens were collected and photographs taken of mature flowering and fruiting trees. Specimens brought back to the herbarium were pressed, dried and mounted with duplicate specimens sent to Dr. C.D. Adams at the British Museum (Nat. Hist.) London, England for assistance with its identification.

Seed Germination Trials

Detailed studies on the growth and development of this plant were not undertaken. Nevertheless an *ad hoc* attempt to grow the seeds from El Tucuche trail to obtain trees bearing male flowers, to complete the herbarium records, produced some results.

Seeds from the El Tucuche trail were sown in a tray with coarse sand and watered daily in the greenhouse on the St. Augustine Campus. After twenty-four days when the seedlings were 50-60 cm tall they were planted in the field at the Citrus Research Unit at St. Augustine, in January 1988. They survived for two months before succumbing to the dry season and neglect.

Similarly, seeds from the Santa Cruz population were

treated as described above and twelve seedlings were planted in the same plot at St. Augustine at the end of February and early March 1989. Four plants died while the remainder which struggled to survive the dry spell revived with the onset of the rainy season and the application of ca. 84 g 13-13-21 NPK fertilizer. Of the eight remaining plants three bore male flowers, one female (fruits aborted) and the other four are yet to produce flowers at the time of writing.

A reserve of fifteen seedlings was kept in polythene bags to replace plants which may have died in the field plots. These plants were stored near the Citrus Research office and one plant ca. 1 m tall flowered and set fruits which aborted on 28th September, 1989.

Discussion

Prior to the rediscovery of this species in 1987, the herbarium maintained two specimens in its collection. The first collection, with young fruits and female flowers, was made in 1893 from Maraval by Baptiste (Trin. 5027) and bears the identification *Carica cauliflora* Jacq., possibly determined at Kew between 1893 and 1895.

The second collection consists of a male inflorescence only and was made on 1st Aug., 1973 in the forest of the Central Range Reserve by C.D. Adams (13385) with the following notation "stem slender, less than 1 in. thick at infls. Ls very shallow lobed. Milky sap, male flowers white. Ls very shiny above, dark green, much paler beneath". Without a collection of female plants the collection was partially identified as *Carica* sp.

There is no doubt that the recently collected specimens from El Tucuche and Santa Cruz Valley are a good match for the earlier herbarium records and belong to the same taxon. Field notes relating to plant texture, colour and dimensions of leaves and flowers of the old and new material are identical. The mature fruits are ovoid, 6-8 cm long and 7-8 cm wide, borne singly or in bunches of 2-3, bright orange, strongly odoriferous with a firm, tasteless orange mesocarp ca. 5 mm thick; seeds numerous, brown, 7-8 mm long and 5-6 mm wide, deeply 5-6 ridged, surrounded by a transparent glutinous membrane.

A comparison between the local species and a description of *Carica cauliflora* Jacq. (Schnee, 1960) shows some differences which are detailed in the table below.

The other localities reported include a second site in the Santa Cruz Valley April 1988 (Anonymous, pers. comm.), Mome Catherine Jan. 1989 (Raynold York, pers. comm.) and the ridge east of Simla Research Station in the Arima-Blanchisseuse Valley Sept. 1989 (Francis Morean, pers. comm.). This plant has not been reported from Tobago.

<i>Carica cauliflora</i>	<i>Carica</i> sp.
Unisexual flowers appear generally below leaves on the defoliated trunk lobules.	Unisexual flowers develop between the leaf axils as well as along the bare trunk.
Stigma divided into numerous lobules.	Stigma 5-lobed
Fruits range from 8 to 12 cm long.	Fruits range from 6 to 8 cm long.

There are some reservations in applying the name *Carica cauliflora* Jacq. to local species. If the taxonomic differences outlined in the table above prove to be minor then the local plant may be the same as the Venezuelan species or a varietal form. If not, it may be another species and would require more systematic research which may reveal yet another undescribed species endemic to Trinidad. Little is known about the biology and ecology of this plant to explain the wide gap between the collections in 1893 and 1973 and the seemingly "sudden" appearance within recent times. Was this plant rare and is it now spreading because of changing conditions in favour of its colonization? What are these conditions? These questions are still to be addressed.

Once the taxonomic and nomenclatural problems are solved, the genetic implications for improving the cultivated varieties of *Carica papaya* L. remain to be investigated, as well as the possibility of economic extraction of papain from its latex.

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References

- JACKSON, B.D. *et al* 1895- Index Kewensis plantarum phanerogamarum. Clarendon Press, Oxford.
 MABBERLEY, D.J. 1987. The Plant Book. A portable dictionary of the higher plants. Cambridge University Press.
 SCHNEE, L. 1960. Plantas Comunes de Venezuela. University Central de Venezuela Facultad de Agronomia, Maracay, Venezuela.