

*Tolumnia moiriana* (Osment) Braem – A Distinct Cuban Species

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***Tolumnia moiriana* (Osment) Braem - A Distinct Cuban Species**

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**ABSTRACT:** *Tolumnia moiriana* (Osment) Braem, is established as distinct species and its involvement in the hybrid swarm of *Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem is discussed.

*Tolumnia moiriana* (Osment) Braem, a Cuban species, has been considered a synonym by several authors (Braem, 1990; Nir, 2000; Ackerman, 2014). Nir (1990) lists *T. moiriana* as a synonym of *Tolumnia guibertiana* (A. Rich.) Braem. Braem (1990) and Ackerman (2014) list *T. moiriana* as a synonym of *Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem.

Ackerman (2014) gives the distribution of *T. lucayana* as “Bahamas and Cuba. Cuba: Prov. Guantánamo and Isla de Juventud; Bahía Guantánamo.” “Epiphytic on shrubs and cacti in dry cactus thorn-scrub.” Ackerman (2014) adds in the distribution Cayo Coco as reported in the Seijo et al (2008) paper. In his discussion Ackerman states: “the above description (of *T. lucayana*) is based on two specimens from Isla de Juventud (including the type of *Oncidium lyratum* Withner) and the type of *O. moirianum* from Guantánamo Bay. The two disjunct Cuban populations represent extremes in variation but are connected morphologically and chromologically by the much more variable populations in the Bahamas”. Ackerman (2014) mentions the two populations of *T. lucayana* on the north coast of Cuba on Cayo Coco (Seijo et al, 2008) and Refugio De Fauna, Rio Maximo, Camaguey (Seijo et al, 2008) and states that they are as variable as the Bahama populations although it seems that Ackerman did not see the Cuban populations because as he states, his description of *T. lucayana* (Ackerman, 2014) is based on the types of *T. lyrata* and *T. moiriana*. In Cuba and the Bahama Islands *T. lucayana* grows primarily in mangrove forests. In the Bahama Islands *T. lucayana* also grows epiphytically primarily in mangrove forests but occasionally in the ecotone between mangrove forest and coastal coppice (Sauleda & Adams, 1981). The habitat Ackerman gives for *T. lucayana* is not the habitat where it occurs neither in the Bahama Islands nor in Cuba but are the habitats of *T. lyrata* (Withner) Braem and *T. moiriana* on which he based his description of *T. lucayana*.

*Tolumnia lucayana* is a highly variable population, varying significantly in flower size, shape and color. This variability has generated taxonomic confusion as evidenced by the publication of three varietal epithets and the inclusion of two valid species as synonyms. Field observations (Sauleda & Adams, 1981) have demonstrated that the numerous morphs of *T. lucayana* comprise a gene pool with unrestricted flow, each morph being pollinated indiscriminately by the bee *Centris versicolor* (Fabricius) (Sauleda & Adams, 1981). An excellent test of the evolutionary history of a species is experimental selfing (self pollination). If the species evolved from a hybrid source or if introgression has occurred, the resulting progeny will illustrate these facts (Sauleda & Adams, 1981; Bello, et al, 2013). The progeny

from experimental selfing of several of the different morphs of *T. lucayana*, produced all of the forms currently found in the natural populations (Sauleda & Adams, 1981).

The populations of *T. lucayana* in Cuba and the Bahama Islands appear to be hybrid swarms (Withner, 1968). In the Bahama Islands and Cuba the populations are extremely variable. The populations of *T. lucayana* on the north coast of Cuba are similar to the populations found in the Bahama Islands. All of the morphs found in populations in the Bahama Islands are also found in the populations on the north coast of Cuba. Apparently the parents involved in the hybrid swarm are no longer present in the Bahama Islands or in the populations on the north coast of Cuba. Plants with white flowers with purple spots can be found in both populations but always with small labella unlike those of *T. moiriana*.

*Tolumnia moiriana*, described by W. Osment, was collected within the U. S. Navy base, Guantanamo, Cuba by a friend for W. Osment, Hollywood, Florida in the summer of 1970. The type specimen was prepared by G. Moir and deposited at AMES. The photographs on the type specimen correspond exactly to the plants collected by Sasser and Ragan (1982). In the area of Guantanamo where *T. moiriana* is found, plants corresponding to the morphs of *T. lucayana* or *T. lyrata* have not been found (Sasser & Ragan, 1982). *Tolumnia moiriana* is sympatric with *Tolumnia leiboldii* (Rchb. f.) Braem, however a hybrid has not been found between them (Sasser & Ragan, 1982).

The flowers of *T. guibertiana*, a synonym of *Tolumnia lemoniana* (Lindl.) Braem (Ackerman, 2014), are consistently yellow with minute dark purple spots on the labellum. While *T. moiriana* has constantly white flowers with minute purple spots on the labellum. These two species are not sympatric nor do they have individuals that resemble each other in the respective populations. A selfing of several individuals of *T. moiriana* acquired from a collection made at the U. S. Naval Base, Guantanamo, Cuba by Sasser & Ragan in 1981 (Sasser & Ragan, 1982), produced progeny consistently similar. None of the morphs found in the population of *T. lucayana* were observed among the selfed progeny. These results prove that *T. moiriana* is a distinct species. In addition this also proves that *T. moiriana* is not a synonym of *T. guibertiana* as Nir (2000) indicated.

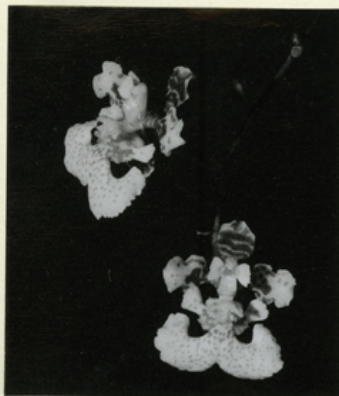
A careful analysis of the types and living material of *T. lucayana*, *T. moiriana*, and *T. guibertiana* (*T. lemoniana*) along with the ecological data of each leads to the conclusion that all are distinct species. Based on the morphs present in populations of *T. lucayana* with spotted labella and yellow labella and all possible combinations, it appears that *T. moiriana* is one of the parents involved in the hybrid swarm of *T. lucayana* along with *T. guibertiana*.



***Tolumnia moiriana* (Osment) Braem. Plant from original collection of Sasser and Ragan at Guantanamo, Cuba, that was selfed.**

ORCHID HERBARIUM  
of  
OAKES AMES

102269



Possible  
Holotype  
Oncidium morianum Osment  
Florida Orchidist 15: 147, 1972  
Det.: G.A. Romero & I. Heredia Feb 2011



UNIVERSIDAD DE PUERTO RICO UPRRP  
*Tolumnia moriana* (Osment) Braem  
Det. J.D. Ackerman 1991

MICROFICHE BY MECKLER  
1983

*Onc. morianum* <sup>Osment no sp.</sup> Type  
from thorn bushes on flat near  
mangroves within U.S. Navy  
Base Guantanamo, Cuba.  
flower white with red dots.  
Coll. by friend for Lou Osment  
Hollywood, Florida  
No. Date 1970 - summer  
prepared by [signature]

THE HARVARD UNIVERSITY HERBARIUM  
00153029

IMAGED

Type of *Oncidium morianum* Osment at Ames.

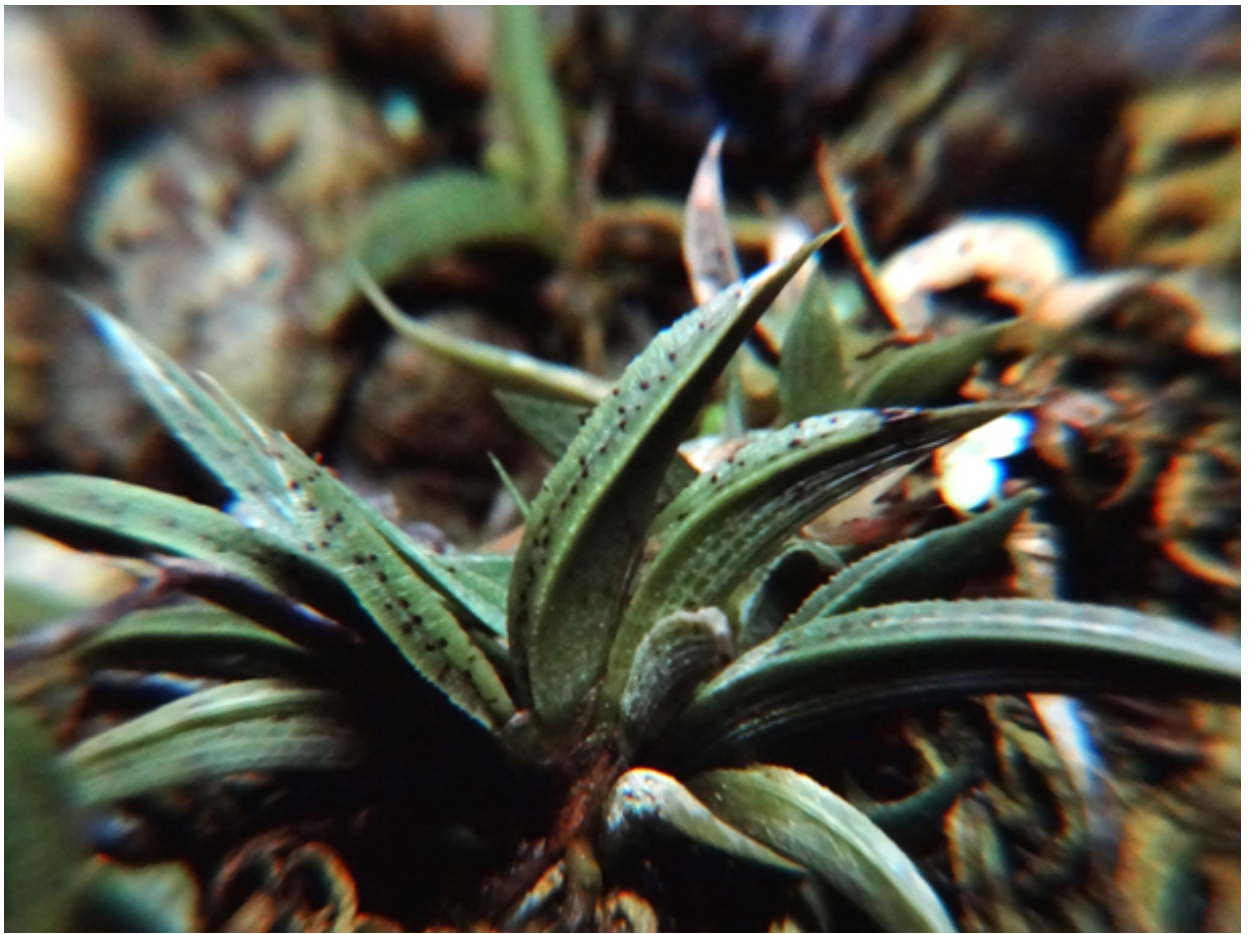




Representative morphs of *Tolumnia moiriana* (Osment) Braem resulting from selfing.

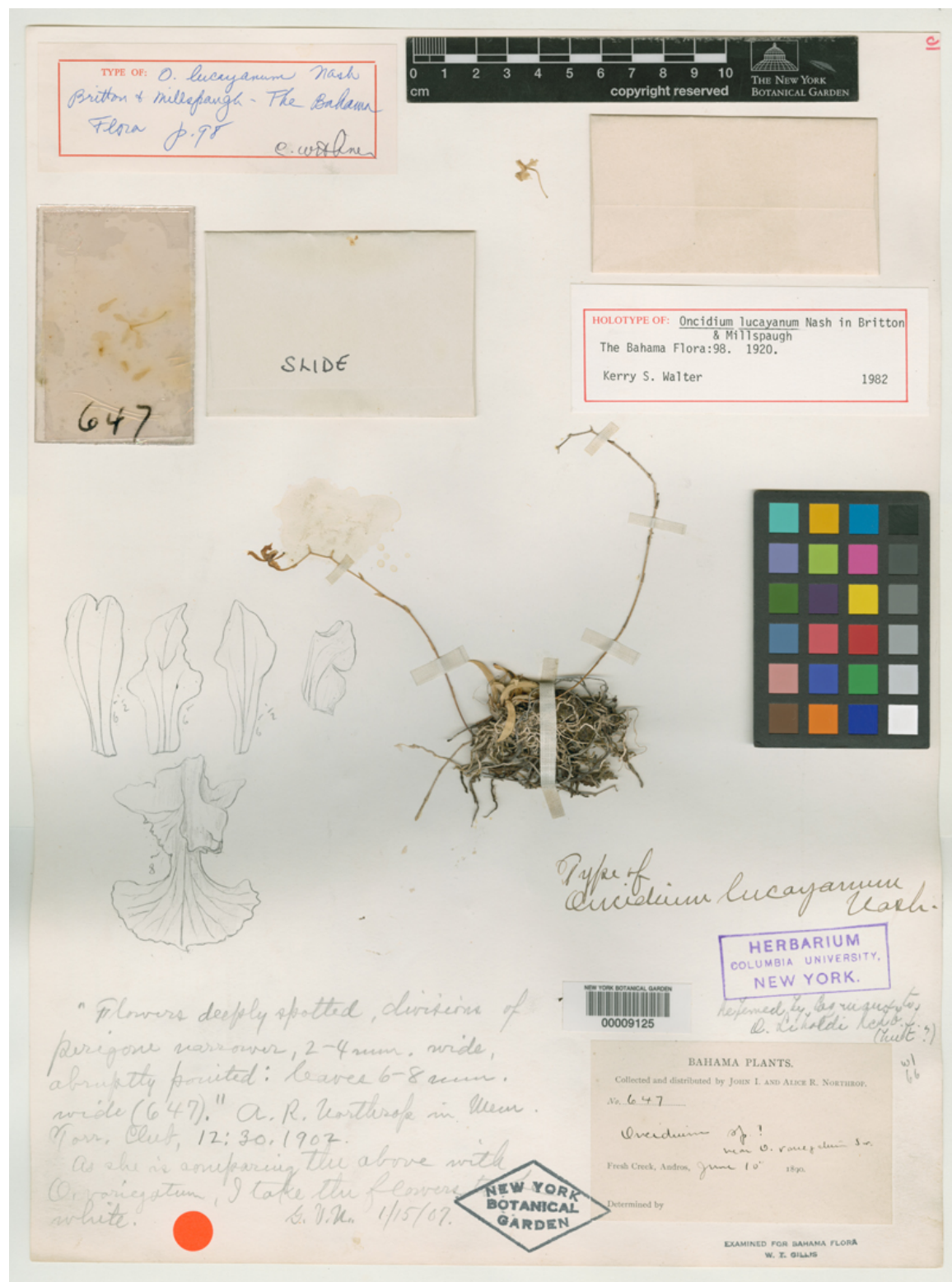


*Tolumnia moiriana* (Osment) Braem in situ at U. S. Naval Base, Guantanamo, Cuba.



Plants of *Tolumnia moiriana* (Osment) Braem resulting from selfing.





Type of *Oncidium lucayanum* Nash ex Britton & Millsp. at NY.

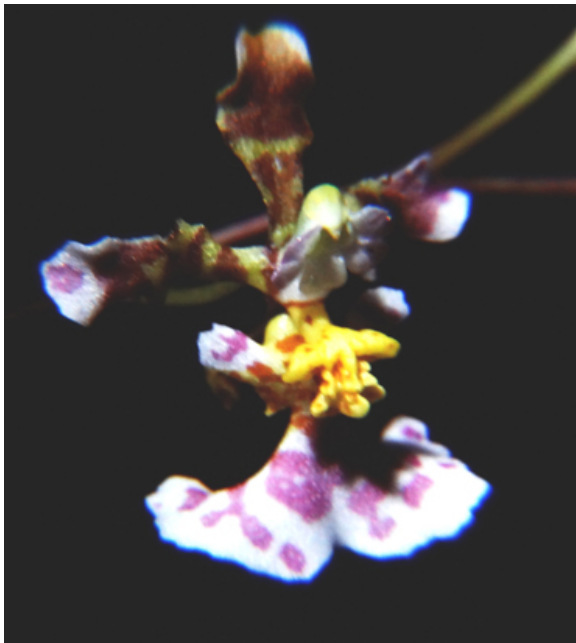


Representative morphs of *Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem from the Bahama Islands drawn by Rebeka Sauleda.

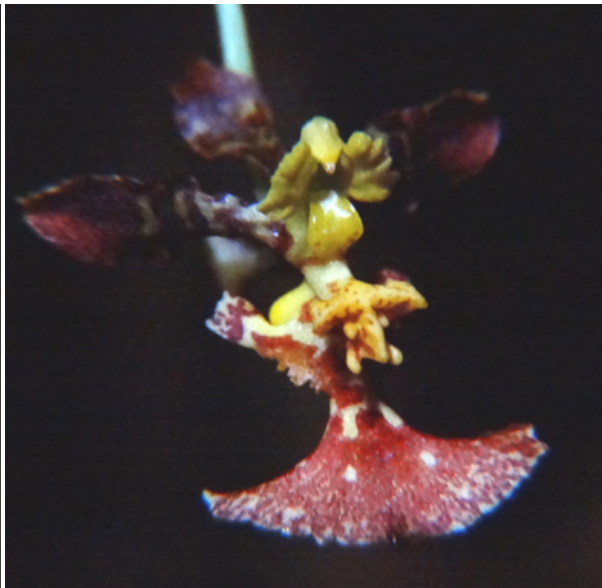
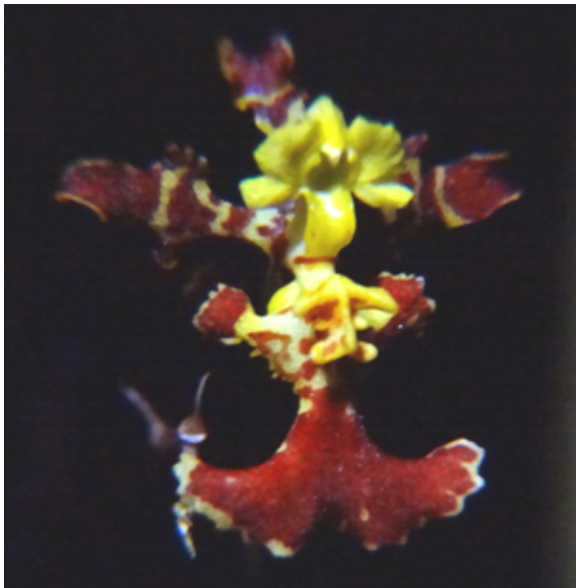


Plants of *Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem in situ at Fresh Creek, Andros Island, Bahamas.

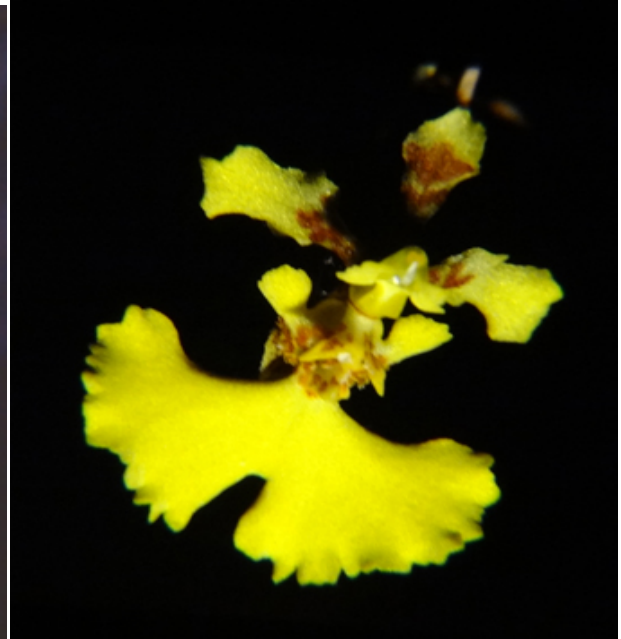




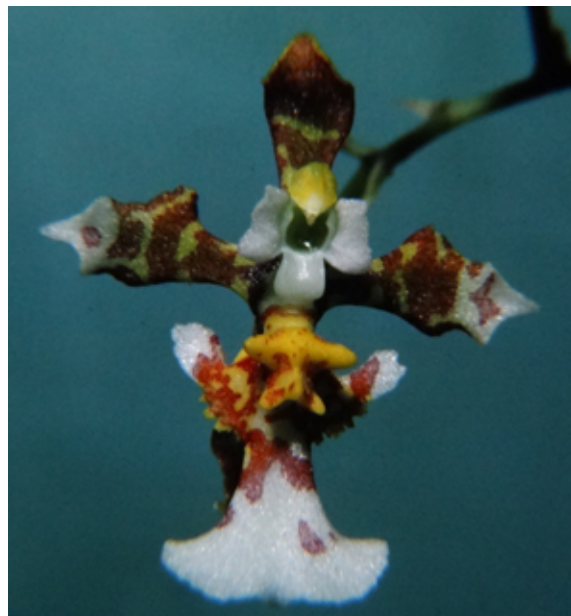
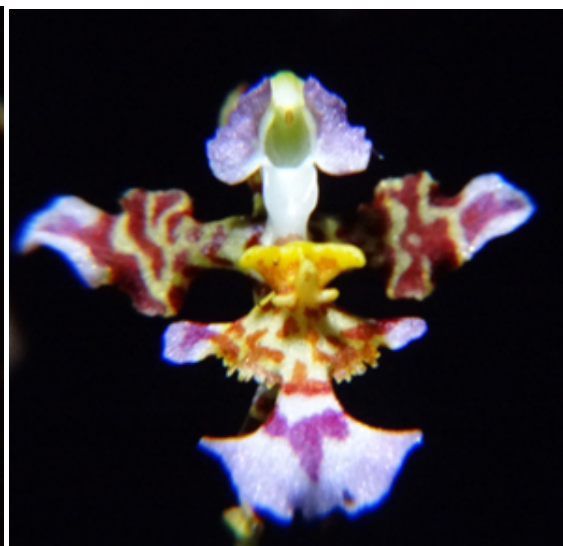
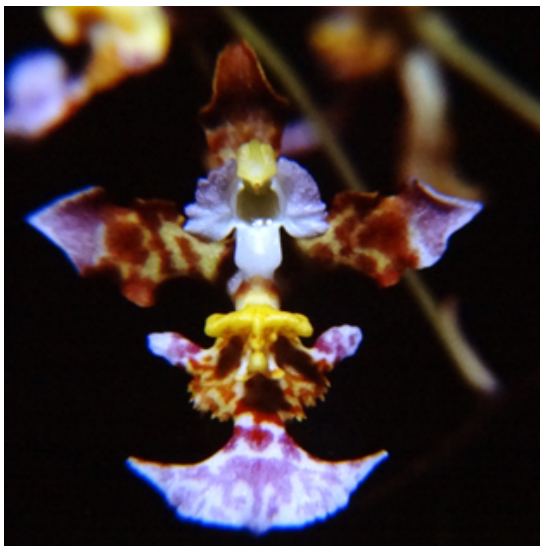
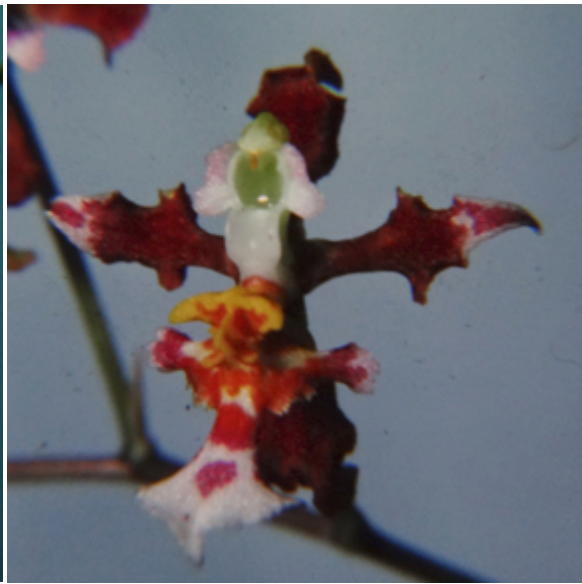
***Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem morphs with spotted labella from population at Fresh Creek, Andros Island, Bahamas.**



***Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem morphs with red labella from population at Fresh Creek, Andros Island, Bahamas.**



*Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem morphs with yellow labella from population at Fresh Creek, Andros Island, Bahamas.



**Additional morphs of *Tolumnia lucayana* (Nash ex Britton & Millsp.) Braem from population at Fresh Creek, Andros Island, Bahamas.**

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