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# Seed Anomalies in a *Butia* × *Syagrus* Hybrid

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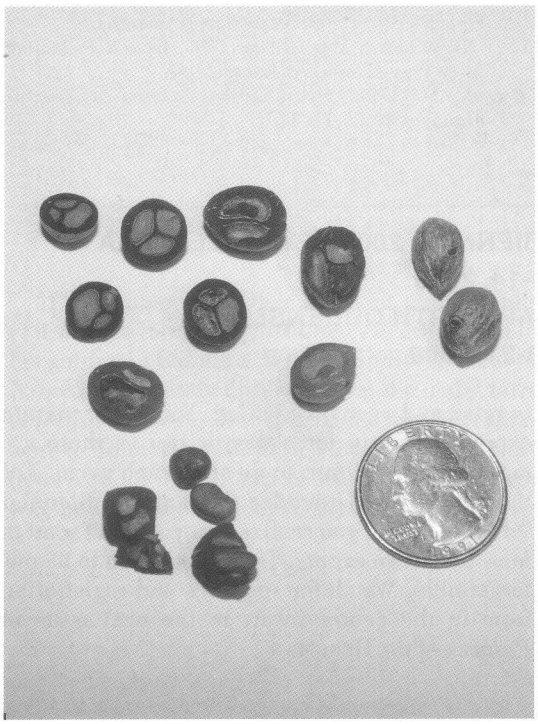
*Butia* species are known to hybridize with *Syagrus, Lytocaryum, Jubaea,* and other genera within the subtribe Butiinae (Boyer 1992). The progeny of the crosses usually exhibit characteristics intermediate between the parents. The cross between *Butia capitata* and *Syagrus romanzoffiana* has been given the horticultural name of ×*Butiagrus nabonnandi.*

×*Butiagrus* plants, formerly called *Butiarecastrum* (*Butia* × *Arecastrum*), are considered sterile (Jones 1987, Wilcox 1998); whereas *Jubaea* × *Butia* progeny may be fertile, producing viable seed (Wilcox 1998). Although all three genera (*Butia, Jubaea,* and *Syagrus*) have chromosome numbers of $n = 16$ (quoted in Uhl and Dransfield 1987), we have not found a refer-

1. ×*Butiagrus* tree in Lakeside Garden Palmetum, Oakland, California USA

2. Seeds of ×*Butiagrus* tree in Figure 1. Upper right: entire seeds with fibrous mesocarp. Lower right: entire seeds cleaned to endocarp. Left: halved seeds split longitudinally and in cross section.



3. Normal seeds of *Butia capitata*.

ence to the chromosome number of the hybrid, but assume it to be also $n = 16$. Nevertheless, this does not explain why the *Butiagrus* hybrids are apparently sterile.

Seeds from fallen fruits of a ×*Butiagrus* tree (Fig. 1), located in the Lakeside Palmetum at the Lakeside Garden, Oakland, California USA, have been collected for a number of years by several palm enthusiasts, but have failed to germinate despite their normal appearance. When the fruit is removed and the seeds cleaned to the hard endocarp (right side, Fig. 2), the seeds sink when placed in water, a misleading indication that the seeds may be normal and fertile.

Daniel Sekella sliced clean seeds from the hybrid into longitudinal and cross-sections, by fastening a hacksaw in a vise and carefully moving the seed by hand against the hacksaw blade. Split seed-halves were smoothed with fine sandpaper. Internally, the seeds were entirely filled with the hard, dark-brown endocarp (left side, Fig. 2). Neither endosperm nor embryo were present. Normally, *Butia* seeds contain hard, white endosperm, occupying one or more cavities within a thin or thick but hard, brown endocarp (shell) (Fig. 3).

The original ×*Butiagrus* plant was obtained from Merrill Wilcox by Allan Bredeson, and was

4. Normal seeds of *Syagrus romanzoffiana.*

planted from a five-gallon container in the spring of 1982. A second, smaller plant from a two-gallon pot was donated by Merrill Wilcox, and planted in December 1983. It has flowered for several years, but never set fruit. There are no other fruiting hybrids of known origin in the San Francisco Bay area whose seeds are available for study. We observed two populations of *Butia* seeds, and found them to be normal. Seeds from two *Syagrus romanzoffiana* trees located in northern California were abnormal, just like the seeds from the hybrid tree. One of these trees is known not to produce viable seeds. Seeds collected from a third tree in Walnut Creek, California, known to produce viable seeds, were normal (Fig. 4); as were seeds from a fourth tree, from Stockton, California.

The finding of a solid endocarp in apparently normal-looking seeds from a ×*Butiagrus* tree provides one reason why the seeds do not germinate. The extent of this anomaly in a population of the hybrid trees is yet to be determined. The finding of the same anomaly in *Syagrus romanzoffiana* seeds was unexpected.

### Literature Cited

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