# FRUIT COMPONENT ANALYSIS IN LAKSHADWEEP COCONUTS

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## ABSTRACT

**The Niu kafa-Niu vai Introgression (NKNVI) method was used for the comparison of the different types of coconut found in Lakshadweep Islands. The highest proportion of husk in the fruit and a high proportion of endosperm in the nut are characteristic of the *Niu Kafa* class, while, a low proportion of husk and high proportion of water in the nut are characteristic of the *Niu vai* class. Fruit component analysis indicated that the different types of Lakshadweep coconuts belong typically to the "*Niu kafa*" class and the Laccadive Small is of intermediate nature, and arose perhaps due to introgressive hybridization between the Laccadive Micro and the Laccadive Ordinary types.**

## INTRODUCTION

Fruit component analysis is the best method of comparing and contrasting different varieties, because it involves that part of the palm, which will be most uniform for a particular variety, in spite of the different growing conditions to which that variety may be subjected. Further, the effects of large or small fruit size or number are diminished by a consideration of the relationship between the components rather than the absolute values. In general, coconuts belong to two contrasting ancestral types, the 'Niu kafa' which disseminated naturally by floating in sea and the 'Niu vai' which was selected for nut water. The high proportion of husk in the fruit and a low proportion of endosperm in the nut are characteristic of the 'Niu Kafa' type, while a low proportion of husk and high proportion of water in the nut are characteristic of the 'Niu vai' type (Harries, 1981). The Lakshadweep coconuts are considered to be belonging to the 'Niu kafa' type (Harries, 1978). The present study was conducted to confirm this contention and also to compare the

different types of Lakshadweep coconuts namely, Laccadive Micro (LM), Laccadive Small (LS), Laccadive Ordinary (LO) and Laccadive Dwarf (LD).

## Materials and Methods

Whitehead (1966, 1968) standardized a simple procedure for fruit component analysis in field. It was slightly modified by Harries (1978). The present study was made, following that proforma. Ten fruits of each type of Lakshadweep coconuts were taken at random from Minicoy island. Each set of ten fruits was taken from ten individual palms, one fruit per palm, for each type. The fruits were taken at their proper stage of maturity, when fruit colour was changing from fresh to dry, calyx had fresh colour and the water inside splashed when fruit was shaken. The palms sampled at random were healthy specimens of that particular type. They had at least one fruit per bunch at the right stage of maturity. The entire bunch was harvested and one fruit chosen. Each fruit was weighed. The husk was removed and discarded. The nut weight was recorded. Then the nut was cut, equatorially, water drained away, and the two half-cups of shell and meat together were weighed. The meat was carefully removed with a hand knife without losing any small bit and weighed.

The mean standard deviation and coefficient of variability for fruit weight, and for husk, water, shell and meat percentages, were determined for each set of samples.

## Results and Discussion

With the exception of Laccadive Dwarf, the rest showed a higher proportion of husk in the fruit and a high proportion of endosperm in the nut (Table 1). Laccadive Dwarf showed a higher proportion of meat than LO and LS and lowest proportion of husk. Therefore, all the four forms of Lakshadweep coconut are typically 'Niu kafa' type.

(*a*) **Fruit weight**: Laccadive Ordinary had the highest mean fruit weight (1446.2 g), and Laccadive Micro the lowest (512.5 g). A high coefficient of variability (47.8%) is found for this trait in the case of the Micro.

(*b*) **Percentage of husk per fruit**: Laccadive Micro showed the highest mean percentage of husk per fruit (66%), and the Dwarf the lowest (40%). The maximum variability (33.2%) for this character was seen in the Dwarf type.

(*c*) **Percentage of water per nut**: Laccadive Ordinary had the maximum mean percentage of water per nut (23.6%) and the Micro the lowest (9.1%). The variability was the maximum (62.7%) for this character in the Micro type.

(*d*) **Percentage of shell per nut**: Laccadive Small showed the highest mean percentage of shell per nut (30.9%), followed closely by the Micro (30.3%), whereas Laccadive Ordinary had the lowest (26.9%). The variability for this trait was the maximum (25.4%) in the Dwarf type.

(*e*) **Percentage of meat per nut**: Laccadive Micro had the mean percentage of meat per nut (60.6%), while the Laccadive Ordinary showed the lowest (47.5%). The variability was the maximum (18.7%) for this character, in the Dwarf type.

(*f*) **Shape of the fruit**: The fruit shape in all the types excepting the Micro, was almost similar and can be described as oblong (longer than broad). In the Micro, the shape varied from near spherical to oblong. All the types showed three prominent carpellary ridges along the length of the fruit, giving an angular appearance. The egg-shaped nut of the *Niu kafa* type and thickness of the husk are quite apparent in the cross section and quite distinct from the nut and thin husk of the *Niu vai* type.

Laccadive small occupied an intermediate position for all the measurable characters studied between the Micro and the Ordinary except for shell percentage per nut which was a little more in L. Ordinary than in the Micro. Whereas the fruit weight and water percentage per nut were found to be the maximum in Laccadive Ordinary, husk percentage per fruit and meat percentage per nut were maximum in the Micro. The coefficient of variability is the highest for fruit weight and water percentage per nut in the case of the Micro, and for husk, shell and meat percentages per nut, in the case of the Dwarf (Table 1).

## Conclusion

From fruit component analysis, it has been established that the Lakshadweep coconuts distinctly belong to the '*Niu kafa*' type. Comparison of the four types of Lakshadweep coconuts, revealed the intermediate nature of Laccadive Small, which probably arose by introgresssive hybridization between Micro and the Ordinary types.

## References

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