

# Coffee Breeding Assisted by Somaclonal Variation: Case of 'Bourbon LC' Variety

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## SUMMARY

Somaclonal variation is the expression of the naturally occurring variability of plant cells, or the result of *in vitro* induced variation of cells following plant regeneration. Somaclonal variation is an excellent method for shortening breeding programs, since it can provide access to genetic variability within existing cultivars.

With the availability of alternative sources of natural variability and a strong consumer demand for quality coffee, attention has been directed to breed for new coffee varieties with enhanced aroma and taste. Green coffee quality is determined by *Genetics*, *Environment* and *Processing* and so, there is an opportunity to develop new varieties with superior cup quality traits.

Laurina is a natural mutation from Red Bourbon plants found in Reunion Island by mid-1800's and cultivated with success due to its drought tolerance and superior beverage properties. Laurina plants have small leaves, thin lateral branches, short-stature, elongated fruits and beans and it has been referred in the literature as "Laurina", "Leroy", "Bourbon Pointu" and "Smyrna" coffee.

A total of 800 Laurina somaclones were raised to maturity under normal coffee growing conditions in Brazil and superior plants were selected based on vigor, yield, and reduced caffeine content. Second and third generations of selected Laurina somaclone lines were evaluated in experimental plots in different coffee farms in Brazil leading to the scale-up of a new coffee variety called 'Bourbon LC'. Bourbon LC has a mild/sweet beverage type and it has a 50% natural reduced caffeine level (0.6% vs. 1.2%). Bourbon LC is a new coffee variety that resulted from natural somatic variation of *C. arabica* cv. Laurina, isolated from a Somaclonal Variation program, followed by standard breeding methods.