

Breeding for Qualitative Traits in Arabica Coffee

M. R. SONDAHL¹, M. PETRACCO², L. ZAMBOLIM³

¹FITOLINK CORP., 6 Edinburgh Lane, Mt. Laurel, N.J. 08054, USA

²Illycaffè S.p.A., Via Flavia 110, Trieste 34147, Italy

³Dept. Phytopathology, Univ. Fed. Viçosa 36571 Vicosa MG., Brazil

ABSTRACT

Arabica improvement programs relying on hybridization focused so far on agronomic traits like increased yield and resistance to diseases. Strong market demand for quality coffee has now directed attention to breed for new varieties with enhanced aroma and taste.

This paper reports progress on Arabica breeding, with emphasis on cup quality, obtained by Somaclonal Variation which captures naturally occurring variability of somatic cells after plant regeneration.

The first population selected, being called “Naomi”, derives from Icatu donor plants. Evaluation of 2,200 somaclones under field conditions yielded 72 lines, some of which selected on sensory notes (26 lines), chemical data (17 lines) and agronomic properties (29 lines). Second and third generation plants are growing under field conditions for additional screening. Variability has been found for sensory attributes (–3 to +3), oil content (11.2% to 18.8%), soluble solids (25.6% to 34.1 %), short stature, narrow to large robustoid leaves (and fruits) and horizontal resistance to leaf rust.

The second somaclonal population selected, based on *Arabica* x *Racemosa* hybrids, is being called “Aramosa”. This “Aramosa” population is highly resistant to drought and early maturing (ca. 180 days from flowers to ripe fruits). From 300 original somaclone plants, 47 lines were selected based on sensory evaluation (23 lines), chemical analyses (3 lines) and agronomical properties, like stature and resistance to disease and pest (21 lines).