

Report of new cultivar

SERGIMAR, new rice cultivar (*Oryza sativa* L.) tolerant low water supplies obtained *in vitro* anther culture

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ABSTRACT

A new short cycle rice cultivar nominated 8733 (Sergimar) was obtained in The Basic Scientific Technological Unit of Los Palacios (UCTB), belonging to the National Institute of Agricultural Sciences (INCA). It presents excellent features in terms of grain yield, milling quality and pests' resistance, as well as a good behavior to low water supplies conditions. With this new cultivar the UCTB hope to favor producers from rice farmer cooperative sector.

Key words: cultivar, biotechnology, hydric stress

INTRODUCTION

Worldwide, there are about 158 million hectares of flooded rice (including double crops), of which 101 million hectares correspond to irrigated rice crops and constitute 75 % of the world's rice production, while, the remaining 57 million hectares correspond to dry land rice and contribute 19 % of world rice production. In Cuba, this cereal is grown in conditions of watering, that is, with the presence of a sheet of water most of its cycle, where the management of irrigation water is a limiting factor in rice production. The decline in rice productivity in most cases is attributed to various abiotic tensions, including drought. Drought stress has become a serious threat to ensure food security in the developing world.

Crop responses to drought stress and their tolerance level can be measured by monitoring different physiological and biochemical changes after the drought period and the recovery of the plant. That is why genetic improvement programs are developed, mainly aimed at obtaining rice cultivars for conditions of low water supplies with greater productive potential and resistance to the main pests. The objective of this work is to disseminate a new medium-cycle rice cultivar, obtained in Cuba through *in vitro* cultivation of anthers for conditions of low water supplies.

DESCRIPTION

In the Los Palacios Base Technological Scientific Unit (UCTB), belonging to the National Institute of Agricultural Sciences (INCA), a genetic improvement program was carried out, whose main objective was to diversify the varietal composition of rice cultivation. The Sergimar medium-cycle cultivar was obtained by using the *in vitro* culture of F2 plant anthers of the INCA LP-10/C4 153 hybrid combination and subsequent evaluation in superior performance tests in observational and regional. Studies carried out in different locations of the Cooperative Farmer sector show a good performance of this cultivar with a yield of 4 to 5 t ha⁻¹ and the industrial yield of 59 % of whole grains. As well as its tolerance to the *Pyricularia grisea* Sacc, *Sarocladium oryzae* Sawada, *Rhizoctonia solani* Khun and *Tagosodes oriziculus* Muir. Among its most important characteristics, the tolerance to low water supplies with 15 days without irrigation stands out, so it exhibits excellent performance for watering conditions.

41 descriptors were evaluated at different stages of the crop (flowering, maturation and post harvest) that included both qualitative and quantitative characters, using the following methodology, Standard Evaluation System for Rice, Varietal Descriptors of CIAT, 1993 and Varietal Description Form for Rice, (Registration of varieties and seed certification, 1998)

Description of the cultivar

Vigor: Very vigorous

Porte of the plant at the end of the choke: Semi-erect

Stem height (cm): 77

Blade length (cm): 33

Blade width (cm): 1.7

Predominant leaf color: Dark green

Aging of flowering leaves: Do not age

Pod color: Dark green

Flag leaf bearing: Erect 0 - 30 degree
Predominant color of the ligule: Whitish yellow
Ligule length (mm): 1.5 (Short)
Ligule shape: Split
Atrium color: Yellow
Stigma color in the spikelet: Yellowish white
Glume color: Light green
Length of glumes (mm): 2.5
Pubescence of the motto and the palea: Hairy
Color of the motto and the palea: Light green
Panicle density: Intermediate
Panicle length (cm): 28
Panicle shape and shape: Equilateral pendant
Shell grains length (mm): Long (10.36)
Grain width with shells (mm): Hemispherical (2.75)
Panicle exersion: Emerged
Weight of 1000 grains with shells (g): Very tall (30)
Grains filled by panicle: 127
Flattening resistance: Resistant
Shear resistance: Resistant
Potential yield of paddy rice (tha^{-1}): Dry - 8.0 and rain- 6.4
Integral rice %: 67
% of integer: 59
Fertile children / m^2 : 389
Resistance to *Pyricularia grisea*: Resistant
Resistant to *Tagosodes orizicolus*: Resistant