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Report of new cultivar

Magda LP-27, new rice cultivar (*Oryza sativa* L.) obtained through hybridization for low wather supplies

Magda LP-27. Nuevo cultivar de arroz (*Oryza sativa* L.) obtenido por hibridaciones, para condiciones de bajos suministros de agua

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ABSTRACT: A new short cycle rice cultivar nominated Magda LP - 28 obtained through hybridization and further field selection studies under low supply condition, was obtained in The Basic Scientific Technological Unit of Los Palacios (UCTB), belonging to the National Institute of Agricultural Sciences (INCA). It presents excellent agronomic morphic characteristics, in terms of grain yield (little rainy 7.2 t ha^{-1} and in the rainy 5.2 t ha^{-1}), milling quality 59% whole grains and pest's resistance *Tagosodes orizicolus and Pyricularia grisea* L, 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.

Keywords: rice, crossing, cultivar.

RESUMEN: En la Unidad Científico Tecnológica de Base de los Palacios (UCTB), perteneciente al Instituto Nacional de Ciencias Agrícolas (INCA), se obtuvo un nuevo cultivar de arroz de ciclo corto (nominado Magda INCA LP-28), obtenido mediante hibridaciones y posterior selección en campo en condiciones de bajos suministros de agua, con excelentes características morfoagronómicas, en cuanto a rendimiento agrícola (época poco lluviosa 7,2 t ha^{-1} y en la lluviosa 5,2 t ha^{-1}), calidad molinera con un 59 % de granos enteros y su resistencia a plagas (muy resistente al *Tagosodes orizicolus y a la Pyricularia grisea L)*, así como un buen comportamiento a las condiciones de bajos suministros de agua. Con este nuevo cultivar la UCTB espera favorecer a los productores de arroz del sector cooperativo campesino.

Palabras clave: arroz, cruzamiento, cultivar.

INTRODUCTION

Rice (*Oryza sativa* L.) is one of the cereals with the highest production worldwide and together with wheat, meat and fish, constitutes the basis of human nutrition; 75 % of the world population includes it in their daily diet. In Cuba it is one of the main foods for the population due to the great habit of consumption of the same, reporting an annual per capita of 72 kg. Therefore, the Cuban state prioritizes the development of the national plant breeding program, which promotes research aimed at conservation, use and enrichment of breeding programs, through the establishment and increase of germplasm collections of species of current economic importance and enhance the development of new varieties or hybrids that contribute to achieving agricultural sustainability in the country. For this reason, genetic improvement programs are being developed, aimed mainly at obtaining rice cultivars for low water supply conditions with greater productive potential and resistance to the main pests.

The objective of this work is to disseminate a new short-cycle rice cultivar obtained in Cuba by hybridization method for conditions of low water supply for Cuban soils.

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Conflict of interest. We declare that we have no conflict of interest

Authors' contribution: MSc. Elizabeth Cristo Valdés. **Design, planned the experiments, evaluation of the experiments and writing of the paper.** Dr. María Caridad González Cepero. **Participated in the selection of promising materials, field evaluation and revision of the document.** Dr. Noraida Pérez León. **Participated in the selection of promising materials, field evaluation and revision of the document.** Lic. Joselin Solano Flores. **Participated in the selection of the promising materials and in the planting.**

DESCRIPTION

At the Scientific and Technological Base Unit (UCTB) Los Palacios, 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 the rice crop. A new short-cycle cultivar named Magda LP-28 was obtained by hybridization of the Ginés/Moroberekan parents and the evaluation of agronomic traits in superior regionalization trials (Figure 1).

Studies carried out in five localities of the Farmer-Cooperative sector, during 4 years, have shown a good behavior of this cultivar, in relation to agricultural and industrial yield, as well as its tolerance to the main pests. Among its most important characteristics is its tolerance to low water supplies, where the following management was carried out, establishment of the sheet 15 days after germination of the rice, suspension of the entry 35 days after germination and replacement at the change of primordium, until after 50 % flowering. In addition, it is worth noting that it has an excellent performance in waterlogged conditions.

Figure 1. New rice cultivar (*Oryza sativa* L.), Magda LP-27

Thirty-two descriptors were evaluated at different stages of the crop (vegetative stage, reproductive stage and ripening stage), which included both qualitative and quantitative characteristics (Table 1), using the methodologies Standard Evaluation System for Rice (IRRI, 2002), CIAT Varietal Descriptors, 1993 and Varietal Description Form for Rice (Variety Registration and Seed Certification, 1998).

Table 1. Qualitative and quantitative characteristics

Vigor	Very vigorous
Growth Habit	Straight
Stem height (cm)	110
Leaf blade length (cm)	55
Leaf width (cm)	1.6
Predominant leaf color	Dark green
Ageing of leaves at flowering stage	Do not age
Pod color	Dark green
Flag leaf growth habit	Straight 0 - 30 degree
Predominant color of ligule	Whitish yellow
Length of ligule (mm)	2.5 (none or very short)
Shape of ligule	Cleft
Auricle color	Off-white
Color of stigma in spikelet	Yellowish white
Color of glumes	Golden
Length of glumes (mm)	2.5
Leaf lamina corrugation	Absent
Color of lemma and palea	Golden
Panicle density	Intermediate
Panicle length (cm)	27.5
Port and shape of panicle	Equilateral pendant
Length of shelled kernels (mm)	Long (10)
Width of grains with husks (mm)	Hemispherical (0.3)
Exersion of panicle	Emerged
Weight of 1000 shelled grains (g)	Very tall (29)
Full grains per panicle	123
Resistant to flatten	Resistant
Resistant to shelling	Resistant
Potential Yield of paddy rice (t ha^{-1})	Dry-7.2 and rain-5.2
Brown rice %	68
Percentage of whole	59
Fertile tillers m^{-2}	360
Resistance to *Pyricularia grisea*	Resistant
Resistance to *Tagosodes orizicolus*	Resistant