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RESENHA

RON, Antonio M. de; RODIÑO, Ana Paula (ed.). **Analysis of crop genetic and germplasm diversity.** Basileia: Multidisciplinary Digital Publishing Institute, 2023. 536 p.

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The book *Analysis of Crop Genetic and Germplasm Diversity*, produced and coordinated by Antonio M. De Ron and Ana Paula Rodiño, compiled in your pages had 33 different studies investigating genetic and germplasm in diversity across various global crops. Published by MDPI in 2023, the volume highlights contributions from 205 authors representing 33 nations, addressing topics ranging from morphological traits to molecular variability, with practical applications aimed at food security, climate change adaptation, and crop improvement programs.

The book's primary focus is the critical role of agricultural biodiversity in enhancing the resilience and productivity of agro-food systems. Various species, including grains, legumes, and vegetables, are assessed for their resistance to biotic and abiotic stresses and their nutritional and agroecological traits. Research on common bean (*Phaseolus vulgaris L.*) emphasizes the symbiotic interaction with *Rhizobium* strains, showcasing the potential of biofertilizers to boost productivity under drought conditions. Similarly, studies on blast-resistant rice and heat- and drought-tolerant maize provide effective solutions to address global climate challenges.

Another key topic is the identification of genetic diversity hotspots, such as Mozambique for cowpea (*Vigna unguiculata*) and Mexico for native maize varieties. These studies underscore the importance of preserving germplasm and offer critical data for developing resilient and locally adapted crop varieties.

The book also addresses resistance to pests and diseases, such as anthracnose in lentils (*Lens spp.*) and blast in rice. The strategies discussed include some wild accessions as essential genetic resources for development in more resilient varieties. The importance of sustainable management and agrobiodiversity is highlighted as an approach to mitigating environmental impacts and improving global food security. Below is a summary of each chapter of the book mentioned (Chart 1).

Chart 1 – Author, titles, and sumaries about the chapters from "Analysis of crop genetic and germplasm diversity":

(continued)

Authors	Summaries
DE RON & RODIÑO	This research resume some analyzes genetic and germplasm in a diversity in crops for agricultural improvement and sustainability.
RODIÑO; RIVEIRO; DE RON	The effect of water stress on symbiotic nitrogen fixation in common beans, with implications for yield were stidies in differnts variets
GOMES *et al*.	Central Mozambique is a major genetic diversity hotspot for agricultural improvement, according to research on cowpea landraces.
SARI *et al*.	analyzes whether neoplasm includes are inherited in domestic-wild pea crosses, with an emphasis on trait expressivity.
BARILLI *et al*.	evaluates anthracnose resistance in Lens spp. genetic material, providing details about resistant to disease breeding.
PAREDES ANDRADE *et al*.	Characterizes chilli pepper traits from the CATIE Genebank, examining morphological, sensorial, and chemical diversity.
SOUZA *et al*.	Investigates genetic diversity and nutritive traits in Cynodon species, contributing to forage improvement strategies.
YOHANE. *et al*.	Analyzes phenotypic divergence in pigeonpea germplasm to identify traits beneficial for crop improvement in diverse regions.
HYUN *et al*.	Explores phytochemical and molecular diversity to develop a core collection of tea germplasm for targeted breeding.
IBRAHIM *et al*.	Digitaria groups were recomeed to improve the phenotipic characters
LEE *et al*.	Korean ginseng germplasm genetic composition for improve the secundary methabolities tests production
POPOVYCH *et al*.	The Gli-B1 locus of common wheat were studied for fto found polymorphisms in the DNA
AZAIEZ *et al*.	Experiment with salinity stress in two contrasting barley genotipes
OSUMAN *et al*.	Population structure of heat and drought-tolerant maize lines.
SABRI *et al*.	Agronomic performance of blast-resistant rice lines for chance climate in the enviromental
CHEN *et al*.	Inheritance of resistance to the fungus Pseudoperonospora cubensis in cucumber.
PRZYBOROWSKI *et al*.	Genetic variability of puroindoline alleles and their influence on wheat grain hardness.

Chart 1 – Author, titles, and sumaries about the chapters from "Analysis of crop genetic and germplasm diversity":

(conclusion)

Authors	Summaries
TANTRAY *et al*.	Proteomic profile of rice cultivars with different phosphorus responses.
ZHANG *et al*.	Genetic diversity and variation in the sequences of starch biosynthesis and sucrose metabolism genes in sweet potato.
PASCUAL *et al*.	Development of a multipurpose core collection of wheat based on high-throughput genotyping data.
BIANCHI *et al*.	Biomorphological characterization of Capsicum Chinense Jacq. germplasm in Brazil.
SULAIMAN *et al*.	Genetic variability of eggplant germplasm evaluated under open field and greenhouse conditions.
YANG *et al*.	Dissection of the genetic basis of culinary and consumption qualities of Japonica rice in Northeast China.
LI *et al*.	Nucleotide diversity and association analysis of the ZmMADS60 gene with root length in maize seedlings.
HAN *et al*.	Disomic addition of 1Ns from Psathyrostachys Huashanica Keng confers mildew resistance in wheat.
ROCANDIO-RODRÍ-GUEZ *et al*.	Estimation of genetic diversity of seven races of native maize from the highlands of Mexico.
CHACÓN *et al*.	Allelic variation for prolamins in Spanish durum wheat varieties and their relation to quality traits.
LEE *et al*.	Molecular genetic diversity and population structure of ginseng germplasm in the RDA-Genebank: Implications for breeding and conservation.
GRAMAZIO *et al*.	Multi-level characterization of eggplant accessions from Greek islands and the mainland, contributing to the improvement and conservation of this germplasm, revealing significant diversity and differentiation signatures between origins.
HARAKOTR *et al*.	Study on lipid content variation in rice germplasms for potential nutraceutical benefits.
LEE *et al*.	Investigates the genetic diversity of worldwide sweet potato germplasms using chloroplast SSR markers.
KARIK *et al*.	Analyzes genetic diversity and population structure of Turkish laurel using iPBS retrotransposon markers.
ULASZEWSKI & KWIATEK	Focuses on utilizing Aegilops species to enhance resistance to leaf and stripe rust in triticale crops.

Source: Chart mading in according to Ron & Rodiño (2023).

Furthermore, the work provides a comprehensive perspective on the opportunities and challenges of utilizing genetic resources in modern agriculture. It emphasizes the importance of integrating traditional knowledge with technological innovations to address pressing issues such as climate change, growing food demand, and biodiversity conservation. With an interdisciplinary perspective, the book approved an indispensable resource for researchers, breeders, and policymakers seeking to promote sustainable and resilient agricultural practices.

REFERENCE

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