

International

PLANT SCIENCE & MOLECULAR BIOLOGY CONFERENCE

October 27, 2020 | Virtual Conference

Application of Wide Hybridization in Sorghum Improvement

K.B.R.S.Visarada* and Kanti Meena

ICAR-Indian Institute of Millets Research, India

Sorghum, is an important cereal crop with multiple uses. Crop improvement programs in India have availed the genetic diversity in the primary gene pool and the yield has arrived at a plateau. It is time to bring in the novel variations from other gene pools to contribute to plant breeding. Tertiary wild species of sorghum carry many agronomically important traits, however, could not be used in breeding programs due cross incompatibility in terms of pollen-pistil inhibitions. Interspecific and intergeneric pollination in sorghum is accomplished through pre-treatment of pollen, repeated pollination and floral sprays. Interspecific hybrids were confirmed through molecular analysis and the progeny inherited many undesirable traits. Through back crossing these were used for genetic widening of two important parental lines 27 and 126.

In another study, large de novo variation in F₂ was obtained after repeated pollinations of sorghum lines with the pre-germinated pollen from maize. All the phenotypes were biased towards sorghum; nevertheless, large heritable variations were used for development of novel pre-breeding lines. RAPD marker analysis of the derivatives in advanced stages of generation showed maize specific bands. We present the characterization and utilization of these wide hybrid derivatives in sorghum crop improvement program relevant to forage, sweet sorghum and grain sorghum improvement programs.

Biography:

K.B.R.S.Visarada is a Principal Scientist at ICAR-Indian Institute of Millets Research, Hyderabad, India. Her Major contributions are reflected in sorghum as the development of pre-breeding material for crop improvement programs through application of tissue culture, transgenic technology and wide hybridization. Apart from research, she worked for spreading awareness of Intellectual Property Rights in agriculture through teaching credit courses and interactions. She is the elected life member of Plant tissue culture association of India. She has many international fellowships to her credit, lead many competitive projects, has products, patent and publications to her credit.