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Mapping, identification and validation of novel yield-enhancing QTLs from *O. longistaminata* A Chevet Roehr

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Increasing the yield potential is the major focus of rice breeding program. One of the main constraints for yield improvement is the narrow genetic base in popular cultivars. Recent reports from molecular mapping studies in different crops including rice indicate that phenotypically inferior wild species can contribute favorable genes for yield and thus providing a novel way for exploitation of wild relatives to broaden the genetic base to improve yield. The AA genome African wild species *O. longistaminata* is a perennial allogamous species was crossed with IR64 to develop a BC2F2 population for mapping of yield and yield component traits. The mean performance of traits in parents and range of trait values of population indicates transgressive segregation in favorable direction for all traits. Most of the yield component traits were normally distributed and skewed towards cultivated rice. A linkage map was constructed with 158 polymorphic markers and the total length of the map was 1840 cM with average marker interval of 12.6 cM. A total of 30 QTLs were identified for 9 yield and yield contributing traits. Major QTLs for yield traits were validated in Nipponbare/*O. longistaminata* and Taichung 65/*O. longistaminata* chromosome segment substitution lines and in IR64/*O. longistaminata* advanced backcross lines. The major QTLs for yield traits were introgressed into an elite New Plant Type (NPT) variety IR65600-81-5-3-2. The improved NPT lines with introgressed QTL regions from *O. longistaminata* showed increased panicle size and grain yield compared to the recurrent parent variety.

Biography

Balram Marathi has completed his PhD from premier Indian Agricultural Research Institute, New Delhi, India and Postdoctoral studies from International Rice Research Institute, Los Baños Philippines. At present he is an Associate Professor at Institute of Biotechnology, Prof. Jayashankar Telangana State Agricultural University at Hyderabad, India. He has published and presented more than 40 research papers in reputed journals and at various national and international seminars. He has been serving as an Editorial Board Member for *Journal Rice Research* and Reviewer for more than ten reputed journals. He is recipient of Assam State Government Gold Medal and Jawaharlal Nehru National Award for best research work in rice.

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