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| Category | : International Rice Research Conference |
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| Keyword 1 | : Pre-breeding |
| Keyword 2 | : Breeding Strategy |
| Keyword 3 | : Biotic stress tolerance |
| Title of Entry | : Developing AB-NAM population derived from two cultivated species of rice <i>Oryza. sativa</i> cv. IR 64 / <i>O. glaberrima</i> |
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| Select only one type of presentation | : 15 minute oral presentation |
| Abstract | : The genera <i>Oryza</i> consists of two cultivated species namely <i>O. sativa</i> and <i>O. glaberrima</i> with $2n=24$ chromosomes. The cultivated species <i>O. sativa</i> is widely grown in Asian continents while <i>O. glaberrima</i> in African continents. Although, <i>O. glaberrima</i> is a cultivated species, mainly grown in Africa, it possess valuable traits that can be used to improve <i>O. sativa</i> which includes early seedling vigour, weed competitiveness, tolerance to low nutrient soils, drought tolerance along with many biotic and abiotic stresses and quality traits. It is considered to be important source for genetics improvement of rice cultivars suitable for upland and direct seeded rice condition. AB-NAM (advanced backcross nested association mapping population) is an important tool in discovery of novel allelic variation, characterized by high genetic diversity in an adapted background, low linkage disequilibrium and negligible population structure. The utility of AB-NAM population is successfully demonstrated in maize, barely and soybean for mapping of important quantitative traits. Therefore, a research programme was undertaken to develop AB-NAM population derived from two cultivated species of rice to identify and introgress important traits from <i>O. glaberrima</i> into <i>O. sativa</i> cv. IR 64. A total of 31 accessions of <i>O. glaberrima</i> received from the IRRI were evaluated for early seedling vigour, weed competitiveness, blast, bacterial blight resistance, sheath blight, brown plant hoppers, quality parameter (zinc, iron and protein), low phosphorous stress and yield attributing traits. The study identified promising lines for early seedling and weed competitiveness (EC861799, EC861819, EC861820, EC861790, EC861792), blast (EC861804), bacterial blight (EC861794, EC861795, EC861807), zinc (EC861819), iron (EC861804), protein (EC861795), and low phosphorous stress tolerance (EC861820). Further, the 31 accessions of <i>O. glaberrima</i> were characterised with |

60 SSR markers and based molecular diversity (cluster analysis) and promising lines for various traits indentified in our study, 20 accessions of *O. glaberrima* were crossed with IR 64 to AB-NAM population. The pollen sterility in interspecific F1s was ranged from 95-100 per cent and spikelet fertility from 0-5%, hence, the F1s were further backcrossed to recurrent parent IR 64 to generate BC1F1s. The resultant BC1F1s were grown and selfed to develop BC1F2 populations. This AB-NAM population

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