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Abstract : Identification of rice (*Oryza sativa* L.) genotypes for submergence tolerance in Bihar Suresh Prasad Singh*, Anand Kumar and Ajoy Kumar Singh Department of Plant Breeding and Genetics, Bihar Agricultural University, Sabour, Bhagalpur (Bihar)-813210 *Corresponding Author: sps2007bau2011@gmail.com Rice for Asians is not only a dominant food crop but also keeps an important place in the national economy. In India, out of the 16.1 million ha area of rice under rainfed lowland ecosystem, 5.2 million ha is periodically affected by submergence almost every year including the state Bihar where 1.1 million ha area is submergence prone. Even though rice is being cultivated under various abiotic stress conditions. In irrigated and flooded condition, most of the rice varieties under cultivation are susceptible to flooding if the plants are submerged for more than seven days under water. Hence, an experiment comprised of nine MAS lines of MR219, Sabitri and IR64 with three parental checks were evaluated in kharif, 2017 at the university farm of BAU, Sabour, Bihar (India). The experimental was conducted in a randomized block design with three replications of 9.0 square meter plot size to each entry and 20 x 20 centimeter spacing. All the recommended package of practices was followed for raising good crop. Thirty-days-old transplanted seedlings were completely submerged with irrigation water for up to 14 days and then maintained under shallow water conditions until maturity. Significant difference in grain yield was observed between the entries. The grain yield of test entries ranged from 314 to 1507 kg/ha. The genotype CRR751-1-12-B-B showed the highest grain yield (1507 kg/ha) followed by MR219 (1351 kg/ha), CRR751-1-7-B-B (1290 kg/ha) and IR 102796-14-77-2-1-2 (1276 kg/ha) under stress condition. The other two parental checks, Sabitri and IR 64 exhibited 311 and 590 kilogram yield per ha. The promising submergence tolerant genotypes can be utilized for improving the productivity of rainfed lowland rice prone to flash flooding. Key words: Rice (*Oryza sativa* L.), Submergence tolerance, Marker Assisted Selection

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