GENETIC EVALUATION OF QTLS AND CORRELATION STUDIES FOR YIELD AND RELATED TRAITS IN RICE (*ORYZA SATIVA* L.) FOR IRRIGATED AND DROUGHT CONDITION

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Abstract: Drought stress is the predominant cause for rice yield reduction and production stability in rain fed and poorly irrigated rice ecosystems. Development of cultivars with improved drought tolerance is thus an important element in increasing productivity and alleviating poverty of communities depends on rain fed ecosystem. Identification of QTLs and molecular markers linked to drought tolerance can substantially improve selection efficiency. 45 lines of F_3 population of two *indica* genotypes, SWARNA and IR86931-B-6 were evaluated under Irrigated, Rainout shelter I and Rainout shelter II condition at Research cum Instructional Farm of College of Agriculture, IGKV, Raipur, to generate phenotypic data and SSR and HvSSR based genotypic data of population was generated. The phenotypic and genotypic data was analyzed for genetic evaluation of QTLs and correlation studies for yield and related traits in rice for irrigated and drought condition. The yield under irrigated condition exhibited non significant weak correlation with grain yield under both rainout shelter I as well as rainout shelter II, 100 SSR and HvSSR primers were screened for detecting parental polymorphism, out of which 37 showed polymorphisms. 37 SSR and HvSSR markers were further used for developing genotypic data. QTLs for DSI were identified on chromosome 3 and chromosome 5 under rain out shelter II condition.

Keywords: Rice, DSI, QTLs, SSR, ROSI, ROSII, Correlation

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