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PROJECT 1 ABSTRACT

(1 Page Limit)

Some of the best sources of FHB resistance and low DON accumulation in barley are the Chinese accessions CIho 4196 and Zhedar 2. These accessions are extremely tall and late maturing due to a linkage block of genes found in the centromeric region of chromosome 2H. The cultivar Shenmai 3 is a Chinese cultivar with FHB resistance, low DON accumulation, early maturity, and acceptable plant height. This cultivar represents an important discovery in the search for lines to be used as sources of FHB resistance by barley breeders. The overall goal of this project is to identify molecular markers associated with FHB resistance in Shenmai 3 that can be used for marker assisted selection and to determine the interaction of genes in this cultivar controlling FHB resistance, DON accumulation, maturity and plant height. These goals will be accomplished using an already developed RIL population from the cross Shenmai 3 x Rawson. In FY07 our goals will be to: 1) identify SSR primers that identify polymorphisms between the two parents; 2) collect data on FHB resistance, DON accumulation, plant height, and maturity in FHB nurseries located in North Dakota and Hangzhou, China; and 3) begin development of a map with molecular markers that can be used for QTL mapping. Our project specifically addresses the research priorities of the Host Genetics and Genomics research program of genetic analysis and mapping of new and/or novel FHB resistance in wheat and barley germplasms, including unique types of resistance, as well as new genes for type II resistance.