

Genetic Control of Root Hair Traits in Rice (*Oryza sativa*)

ABSTRACT

The on-going increase of human population in developing countries requires an increase in crop yields to meet the growing demands for food. In these countries, however, agricultural productivity is limited by soil infertility. Rice is the world's most important crop and a major food source for half of the world's population. Upland rice, primarily grown as a subsistence crop, is the dominant rice production system in Latin America and West Africa, where most of the soils are affected by low phosphorus availability. Most existing rice cultivars produce low yields in low-phosphorus soils. Several root traits are known to confer better performance in such conditions, including root hair length and density. Our preliminary study supports the hypothesis that there are genotypic differences in root hair characteristics of rice genotypes. In this proposed project, Association Mapping will be used for identification of molecular markers controlling root hair traits in rice. This will contribute to a greater understanding of the genetic mechanisms controlling root hair traits and provide a powerful tool for plant breeders in developing improved cultivars for low-input agricultural systems.