Future Direction

Mechanical stress induced adaptations in plant provide enhanced tolerance to various abiotic and biotic stress in many plants. It would be interesting to explore this area of research in rice and pigeon pea. Gene expression studies in rice indicates involvement of JA responsive pathway which is also known to provide protection against many necrotrophic and biotrophic infection. We don't know if prolonged exposure to mechanical stress could provide resistance to bacterial and fungal infection in rice? Also, we couldn't identify any counterpart of TCH molecule in rice, it still remains unanswered whether any other Calcium binding genes are involved in this process. Identifying this would give us better understanding of the mechanism of touch perception in rice.

In present study we have also studied the least explored crop plant *Cajanus cajan*. We have found many new phenotypes which are reported first time for a legume plant. In depth study at molecular level is required to answer how mechanical stress affects nyctinasty movements in *C. cajan*. Also, a detailed study is required to understand – how mechanical stimuli affects symbiotic association of *C. cajan* and *Rhizobium*.

In prospect of crop improvement, effect of regular mechanical stress on yield of both the crops has to be studied on field level. Also, whether mechanical stress gives cross tolerance to abiotic stress like drought and salinity can be tested for both the crops.