CHAPTER VI
CONCLUSIONS

Identification of chitosan-responsive proteins in LPT123 and LPT123-TC171 rice during drought stress

With GeLC-MS/MS analysis, 401 and 115 chitosan-responsive proteins were respectively detected in leaf and root tissues of LPT123 rice during drought stress. In LPT123-TC171 rice, chitosan-responsive proteins were 314 and 88 proteins in leaf and root tissues, respectively. Most of them were down-regulated. These proteins were classified into several functional groups. Among known functional proteins, proteins involved in metabolic process were the dominant group.

Expression analysis of a chitosan-responsive gene during drought stress, *transcriptional repressor*

Transcriptional repressor responded to drought stress and chitosan in LPT123 and LPT123-TC171 rice in opposite manner. In LPT123 rice, there was no significant difference in *transcriptional repressor* gene expression due to chitosan application under drought stress condition at any time points. However, its expression level tended to increase in non-chitosan treated plant under drought stress and be higher than that of chitosan-treated plant. In LPT123-TC171 rice, its transcription level was likely to decline during drought stress in non-chitosan treatment. On the other hand, in chitosan-treated LPT123-TC171 plants, its expression was liable to increase under drought condition and be higher than that of non-chitosan treatment. As the transcriptional repressor was predicted to function as ABA suppressor, the lower level of *transcriptional repressor* gene expression in chitosan-treated LPT123 rice compared to the non-treated one under drought stress suggested the better ABA response under drought stress in chitosan treated plants, leading to the better ability to cope with drought stress. On the other hand, chitosan induced the higher expression of *transcriptional repressor* gene of LPT123-TC171 rice. This implied the lower ABA response, which might result in the lower adaptability to drought stress by chitosan in LPT123-TC171 rice.