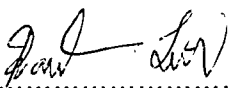
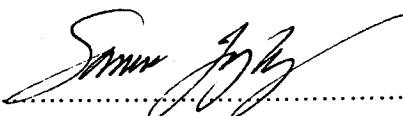


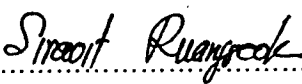
THESIS TITLE : A STUDY ON THE CAUSES OF NON-GLUTINOUS RICE
SEEDS FORMATION IN GLUTINOUS RICE PANICLES

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ABSTRACT

The major problem in the seed or grain multiplication program for glutinous varieties is non-glutinous endosperm generally occur on the panicle of glutinous varieties. A study on the causes of non-glutinous rice seeds formation in glutinous rice panicles leads to overcome this problem. The study was carried out during June 1996 to September 1997 at Department of Agronomy Faculty, of Agriculture, Khon Kaen University, Khon Kaen and Sakon Nakhon Rice Research Center, Sakon Nakhon. The objectives of this study were : 1) to study spontaneous mutation percentage of non-glutinous rice in glutinous rice 2) to study natural outcrossing percentage between Niaw Dam and RD6 and 3) to study the number of gene controlling purple leaf blade and leaf sheath character of Niaw Dam. A study on spontaneous mutation percentages of three glutinous rice varieties was used randomized complete block design with 4 replications. The result revealed that spontaneous mutation of KKNUR 82003-SKN-

69-1-1 was 0.001% to 0.015%. Non-glutinous endosperm seed was not found in RD6 and HY71 panicles, which were sampled from the field. The performance of RD6 variety were satisfactory with those desired characters such as plant height, number of panicles per hill, number of seeds, seeds fertility and seedless per panicle. Those desired characters of RD6 were better than those of KKNUR 82003-SKN-69-1-1 and HY71. However, seed size of KKNUR 82003-SKN-69-1-1 was larger than RD6 and HY71. Moreover, KKNUR 82003-SKN-69-1-1 was earlier in flowering and maturity of the two varieties. A study on natural outcrossing percentages of RD6 was carried out using Niaw Dam as a check variety. To ensure the synchronization of flowering days of these two varieties, RD6 variety was planted every 15 days interval for 6 planting dates. A completely randomized design with 5 replications was conducted. Natural outcrossing percentage of 0.74 was obtained when flowering dates of both variety were synchronized. Decreasing in natural outcrossing was observed when flowering dates were not synchronized. The performances of all agronomic characters of RD6 were markedly influenced by planting dates. Early planting dates resulted in higher plant height, more number of panicles per hill, more number of seeds per panicle, more fertile seeds per panicle and higher 1,000 seeds weight. The result from different planting dates also confirmed that RD6 had a short day habit which was indicated by flowering dates. The plants from different planting dates flowered almost at the same day. Further study on segregation of F_2 generation is required in order to find out the number of gene controlling purple leaf blade and leaf sheath character of Niaw Dam. Segregating materials received from the crosses between Niaw Dam and RD10. The ratio of segregation was 1 : 2 : 1 for purple : segregating : green. It was concluded that gene action in this character was incomplete dominant and appeared to be governed by a single dominant gene.