

## Chapter V

### Conclusion

Chemical analysis of latex serum showed that the nutrient contents in CS and DS were not different. They contain high N content of 0.5-0.9 g% with low content of phosphorus compared to Hoagland solution. It can be used as N fertilizer for rice plants.

Growth of rice seedlings of SPR 1 and KDML 105 in hydroponic culture revealed that 1%-3% v/v of CS and DS can promote shoot and root growth of SPR 1 and KDML 105, which were comparable to those of Hoagland solution. It produced vigor plants with dark green leaf.

Utilization of diluted CS and DS (1-9%) as fertilizer for SPR 1 and KDML 105 in Pot Experiment I, indicated that 9%CS (117 kgN/rai) could substitute ammonium phosphate fertilizer in the rate of 0.096 gN/pot or 30 kg/rai, whereas DS could not even at high concentration. Application of CS9 to SPR 1 produced higher grain weight and straw weight whereas KDML 105 produced lower grain weight but higher straw weight. Both rice cultivars applied with CS9 showed delay flowering day. N and K content of straws supplemented with CS of both rice cultivars were high whereas in the seeds N and S were high. Obviously, no adverse effect of Zn was found in straws and seeds supplemented with latex serum. Latex serum tended to increase pH and K in the soils.

Control serum in combination with ammonium phosphate fertilizer in the ratio 50:50 could substitute 30 kg/rai of ammonium phosphate fertilizer with higher yield and straw weight more than 2 fold with 5 days delay flowering in SPR 1 and earlier flowering by 3 days in KDML 105. N content of straws and seeds of both rice cultivars decreased with increasing level of chemical fertilizer. This confirms the finding of the first Pot Experiment that latex serum can increase N content of the straws and seeds. Zn concentration in the straws, seeds and soil of SPR 1 and KDML 105 supplemented with 50S+50F was lower than that of untreated control.

The effect of fixed amount of latex serum (100S), plus variable chemical fertilizer on growth and yield of SPR 1 and KDML 105 was performed in the Pot Experiment III. It was clearly concluded that rice plants were highly responded to 100S+50F treatment. It produced straw weight higher than that of chemical fertilizer about 3 fold in both rice cultivars and produced grain yield of 2.8 and 1.8 fold in SPR1 and KDML 105, respectively over that of chemical fertilizer alone. However 6 days delay flowering was found in SPR 1 and earlier flowering by 2 days in KDML 105. N content of straws and seeds of both rice cultivars was in the same pattern as the Pot Experiment II. From this experiment it confirms the former experiment that there was no effect of latex serum on Zn concentration in the straws, seeds and soil.

Application of latex serum to the soil resulted in increasing bacterial colony count of soil by standard plate count method and algal cells in the water.

Suggestion:

1. Evaluation the growth of rice seedlings in hydroponic culture by measure the root length only may be not appropriate. Root dry weight should also be measured.
2. It is necessary to carry field study to determine the effects of latex serum on growth and yield of rice plants and also on the soil properties.
3. Treatment 50F+50S or 15 kg/rai of ammonium phosphate fertilizer in combination with 58 kgN/rai of latex serum suppose to be used as fertilizer for rice.
4. Due to the slow transformation of nitrogen in latex serum to rice plant, early application of latex serum should be performed, together with rice straw application.
5. Latex serum is low nitrogen-containing liquid fertilizer, so it is not saving in terms of transporting cost. If possible it should be made in solid fertilizer form and higher concentration of nitrogen and phosphorus. This will make latex serum attractive to farmers.
6. Use of rice varieties recommended for the Southern part of Thailand as test plant, which may be directly useful for the farmers near the rubber factories.
7. The effect of latex serum on growth and yield of rubber seedlings or rubber tree should also be tested.



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