Kanjana Lungkee 2007: Study on the Bioenergetic Costs of Biomass and Biochemical Components of Para Rubber Latex. Master of Science (Agriculture), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Assistant Professor Poonpipope Kasemsap, Ph.D. 98 pages.

The objectives of this study were to evaluate bioenergetic costs of biomass and total solid content (TSC) of latex of Para Rubber by elemental analysis method and to study the effects of ethephon on bioenergetic costs of biomass and TSC of latex. The results showed that most parts of rubber tree clone RRIM600 including leaf, petiole, fallen leaf, fallen petiole, trunk wood, trunk bark, taproot wood, lateral root, fibrous root, brown branch, green branch, seed endosperm and seed coat contained large amount of C, and smaller amount of O, H, N, and S, respectively. The taproot bark, however, contained large amount of O with smaller amount of C, H, N, and S, respectively. The researcher found that seed endosperm had the greatest bioenergetic costs of biomass synthesis (specific cost for synthesis) while leaf, fallen leaf, fallen petiole, petiole, trunk wood, brown branch, lateral root, seed coat, trunk bark, green branch, taproot wood, fibrous root and taproot bark had smaller bioenergetic costs, respectively. Furthermore, element composition analysis showed that TSC of latex contained large amount of C and smaller amount of H, O, N, and S, respectively. Bioenergetic costs of TSC of PB235 and GT1 latex were similar and they were greater than that of RRIM600. The bioenergetic cost of TSC of RRIM600 and GT1 latex peaked in December while that of PB235 peaked in January. Finally, ethephon significantly affected both biochemical composition and bioenergetic costs of TSC of latex in all three rubber clones.

K. Lungkee — Student's signature

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22 / Oct. / 2007