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UNCHERA SOOKMARK : STUDIES ON SPECIFIC MOLECULAR  
MARKERS FOR TAPPING PANEL DRYNESS (TPD) IN *HEVEA BRASILIENSIS*.  
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Rubber tree (*Hevea brasiliensis*) is a major economic crop of Thailand. It frequently happens in *Hevea* plantation that the latex production of certain tree becomes abnormally low or nonexistent. This spontaneous drying up of the tapping cut is so called Tapping Panel Dryness (TPD). The syndrome seems to be a physiological disorder which can occur spontaneously by natural, but in most case can be induced by the over-exploitation of rubber tree (overtapping and/or overstimulation). This disease often seriously affected the rubber yield since the plants are no longer tapped. The purposes of this present work were to identify and characterize the specific molecular markers for TPD and try to develop the method for early diagnosis TPD tree in the field.

The latex from TPD tree exhibited accumulation of a 15 kDa protein (PDF 15) and 22 kDa protein (PDF 22) and also a *de novo* expression of a 29 kDa protein (PDF 29) in the latex cytosol. The compartment analysis suggested that PDF 15 and PDF 22 are normally bound to the rubber particle membrane. Partial amino acid sequences of PDF 15, PDF 22 and PDF 29 had homology to rubber elongation factor (REF), Hev b 3 and patatin, respectively. The PCR cloning of these three proteins were performed by using cDNA from rubber latex as template and used as probes. There was no significant difference in gene expression observed between healthy and TPD trees, indicating that the TPD-related accumulation of these three proteins was not due to transcriptional regulation mechanism. The preliminary ELISA tests using PDF 15 antibody with the pooled latex cytosol was successfully discriminate between healthy and TPD trees. The ELISA tests on a large scale and with individual sample need to be developed because the contamination of rubber particle in cytosol sample interferes the quantification.